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CONTENTS.

The whole of the literary matter in THE LANCET is copyright.

THE BRADSHAW LECTURE on Gunshot Injuries of the Arteries. Delivered before the Royal College of Surgeons of England on Dec. 5th, 1913, by G. H. MAKINS, C.B., F.R.C.S. Eng., Vice-President of the College; Surgeon to St. Thomas's Hospital; Consulting Surgeon to the Evelina Hospital for Sick Children, Southwark..... 1743

ORIGINAL ARTICLES.

On the Diagnosis, Prognosis, and Treatment of Sydenham's Chorea. By FREDERICK LANGMEAD, M.D. Lond., F.R.C.P. Lond., Physician in Charge of Out-patients to St. Mary's Hospital, &c..... 1753

Oil-Ether Anæsthesia. By J. T. GWATHMEY, M.D..... 1756

Development of the Pharynx by Muscular Exercises after Operation for Adenoids, with Special Reference to Feeble-minded Children. By FRANCIS WARNER, M.D. Lond., F.R.C.P. Lond., F.R.C.S. Eng., Consulting Physician to the London Hospital and Lecturer on the Neuroses and Psychoses of Children..... 1758

On a Fatal Case of Pellagra in an Insane Patient. By F. E. RAINSFORD, M.D. Dub., Medical Superintendent, Stewart Institution for Imbecile Children and Hospital for Mental Diseases, Chapelizod, co. Dublin..... 1759

The Use of Vaccines Graduated by their Opacity. By LEWIS C. BRUCE, M.D. Edin., F.R.C.P. Edin., Physician to, and Superintendent of, Perth District Asylum, Murthly... 1760

Cancer of the Tongue and Larynx Removed by Operation. By W. S. KERR, M.B., C.M. Edin., F.R.C.S. Edin., Surgeon to the Ear and Throat Department of the Sheffield Royal Infirmary ... 1761

The Repair of the Flexor Tendons of the Hand: a Revised Technique. By C. MAX PAGE, M.S. Lond., F.R.C.S. Eng., Surgeon to Out-patients, Victoria Hospital for Children, &c.—(*Illustrated*)..... 1762

A Case of Rat-bite Fever Treated with Neosalvarsan. By N. F. SURVEYOR, M.A., M.D. Bombay, M.R.C.P. Lond., D.P.H. Camb., Professor of Bacteriology, Grant Medical College, Bombay, &c. 1764

MEDICAL SOCIETIES.

ROYAL SOCIETY OF MEDICINE: SURGICAL SECTION:—Brachial Arterio-venous Aneurysm treated by Vascular Suture.—Ruptured Intestine.—Endothelioma of the Breast..... 1765

SECTION OF OBSTETRICS AND GYNÆCOLOGY:—Primary Cancer of Bartholin's Gland.—Pre-eclampsia.—Cæsarean Myomectomy.—Relation of Syphilis to the Uterus.—Fœtus Acardiacus Amorphus..... 1766

ROYAL SOCIETY OF MEDICINE: SECTION OF LARYNGOLOGY: Exhibition of Cases, &c.... 1767

SECTION OF ANÆSTHETICS:—Fatalities Occurring during Anæsthesia..... 1768

SECTION OF PSYCHIATRY:—Exhibition of Cases..... 1768

HUNTERIAN SOCIETY: Migraine..... 1769

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY: Treatment of Abortion..... 1770

ROYAL ACADEMY OF MEDICINE IN IRELAND: Exhibition of Specimens.—Paget's Disease of the Nipple.—Carcinoma of the Breast... 1771

MANCHESTER PATHOLOGICAL SOCIETY: Human Remains Found on the Site of the Roman Cemetery in Chester 1772

WEST LONDON MEDICO-CHIRURGICAL SOCIETY: Biology of Syphilis 1773

GLASGOW MEDICO-CHIRURGICAL SOCIETY: Exhibition of Cases..... 1773

WIGAN MEDICAL SOCIETY: Tuberculosis Dispensary..... 1774

MANCHESTER MEDICAL SOCIETY: Walking..... 1774

REVIEWS AND NOTICES OF BOOKS.

Studies in Cancer and Allied Subjects: The Study of Experimental Cancer. A Review by William H. Woglom, M.D..... 1775

Vaccine and Serum Therapy, including a Study of Infections, Theories of Immunity, Specific Diagnosis, and Chemotherapy. By Edwin Henry Schorer, B.S., M.D., D.P.H. Second edition 1775

The Poisonous Terrestrial Snakes of our British Indian Dominions (including Ceylon) and How to Recognise Them, with Symptoms of Snake Poisoning and Treatment. By Major F. Wall, I.M.S., C.M.Z.S. Third edition..... 1776

Compendium of Regional Diagnosis in Affections of the Brain and Spinal Cord. By Robert Bing. Second edition 1776

Zur Psychopathologie des Alltagslebens. By Professor Dr. Sigmund Freud. Fourth edition..... 1776

Handbuch der Vergleichenden Physiologie. Herausgegeben von Hans Winterstein..... 1777

The Principles of Evolution. By Joseph McCabe..... 1777

The Practical Medicine Series. Vol. IV.: Gynecology. Edited by E. C. Dudley, A.M., M.D., and H. M. Stowe, M.D..... 1777

Alimentary Toxæmia: Its Sources, Consequences, and Treatment. A Discussion opened by W. Hale White, M.D., and others 1777

Obstetric Aphorisms. Eleventh edition. By Joseph Griffiths Swayne, M.D..... 1777

Miscellaneous Volumes..... 1778

Journals and Magazines..... 1778

NEW INVENTIONS.

An Improved Urine Specimen Glass.—(*Illustrated*)..... 1779

A New Ether Drop Bottle.—(*Illustrated*)..... 1779

LEADING ARTICLES.

THE UNIVERSITY OF LONDON: THE QUESTION OF SITE..... 1780

PRECAUTIONS CONCERNING CELLULOID..... 1781

ANNOTATIONS.

The Isthmian Canal and Disease..... 1782

The Physician in English History..... 1782

Christmas and Burning Accidents 1783

The Urinary Reaction of Weisz 1783

The Last Illness of Michael Barclay de Tolly..... 1783

An Open Safety-pin for Ten Days in the Œsophagus of a Baby..... 1784

The Expectation of Life in Ancient Rome..... 1784

Recurrent Intussusception after Operation..... 1785

King Edward's Hospital Fund for London: St. George's Hospital and the Distribution Committee..... 1785

Early Operation in Cases of Appendicitis 1786

Pellagra in Ireland 1786

Ambulance Service for the Metropolis..... 1786

The Rumpel-Leede Phenomenon in Scarlet Fever..... 1786

Food Adulteration and Christmas Fare..... 1787

The Mesothorium Treatment of Cancer..... 1787

Vital Statistics for 1910 of the United States of America.... 1788

PUBLIC HEALTH.

Reports of Inspectors of the Medical Department of the Local Government Board ... 1792

VITAL STATISTICS:

Vital Statistics of London during November, 1913..... 1792

Analysis of Sickness and Mortality Statistics in London during November, 1913..... 1793

SPECIAL ARTICLES.

Royal College of Surgeons of England: Meeting of Council 1779

The Indian Medical Service.... 1788

The Health of the Navy in 1912..... 1791

The Services..... 1794

Medical Practice under the Insurance Act. XXXI.—The Struggle in Wales between the Panel and the Institutions.—(*To be continued*) 1796

HOME AND FOREIGN NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Liverpool 1798

Scotland 1799

Ireland 1799

Paris 1800

Canada..... 1802

OBITUARY.

Sydney Jones, M.B. Lond., F.R.C.S. Eng., Consulting Surgeon to St. Thomas's Hospital; late Member of the Council of the Royal College of Surgeons of England.—(*With Portrait*)... 1801

Deaths of Eminent Foreign Medical Men..... 1802

CORRESPONDENCE.

The Government of the Royal College of Surgeons (Mr. Percy Dunn)..... 1803

The Medico-Psychological Clinic (Prof. C. Spearman)... 1803

Range of Flight of Musca Domestica (Dr. J. T. C. Nash)..... 1803

Dates in Physiology (Prof. W. D. Halliburton)..... 1804

Cancer and Secondary Rays from Calcium Phosphate (Dr. Reginald A. Fessenden) 1804

Medical Inspection of Parsi School Children of the Bombay Presidency (Dr. K. K. Dadachanji)..... 1804

The Ebbw Vale Workmen's Medical Society (Dr. Hugh Neville Taylor) 1805

Intestinal "Kinks" (Mr. C. Hamilton Whiteford) 1805

Astrology in Medicine (Dr. Chas. Mercier)..... 1810

THE NATIONAL INSURANCE ACT.

Clause 2 (ii.)..... 1806

The National Insurance Practitioners' Association..... 1806

National Medical Guild 1806

The Temptation to Malinger... 1806

Ipswich Insurance Committee 1806

Aberdeen Insurance Committee: Allocations to Panel Practitioners..... 1807

A Proposal at Manchester..... 1807

MEDICAL NEWS.

The Collet Memorial, Worthing 1752

Latin-American Medical Congress..... 1761

Bristol Health Committee 1774

Hospital Almoners' Council ... 1774

A Munificent Thankoffering... 1779

Bristol General Hospital..... 1779

Literary Intelligence..... 1796

University of Bristol: Long Fox Lecture..... 1798

Donations and Bequests 1802

Foreign University Intelligence 1805

Pass list of the Royal College of Surgeons of England..... 1807

Royal Sanitary Institute 1808

Royal Medical Benevolent Fund 1808

Books, &c., received 1808

Appointments..... 1808

Vacancies..... 1808

Births, Marriages, and Deaths 1809

Notes, Short Comments, and Answers to Correspondents 1810

Medical Diary..... 1811

Meteorological Readings..... 1811

Acknowledgment of Communications received 1812

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 4.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

PAGE

ADLARD & SON:—
Fenwick .. Wide Resection of the Bladder .... Cover 1

BAILLIERE, TINDALL & COX:—
Bier ..... Indigestion 6
Blumfeld .. Anæsthetics .. Cover 1
Campbell .. Treatment .... Cover 1
Freyer .... Enlargement of the Prostate .... Cover 1
" .... Surgical Diseases of the Urinary Organs Cover 1
Gardner .. Surgical Anæsthesia Cover 1
Rose & Carless .. Surgery ..... Cover 1

BALE, SONS & DANIELSSON:—
Biedl ..... Internal Secretory Organs ..... Cover 1
Hawthorne. Studies in Clinical Medicine .... Cover 1
Lohmann .. Disturbances of the Visual Functions Cover 1
Quervain .. Clinical Surgical Diagnosis ..... Cover 1

PAGE

CASSELL & CO:—
Morris, Sir M..... Diseases of the Skin.. 6

CHURCHILL, J. & A.:—
Birnbaum & Blacker .. Malformations, &c., of the fœtus 5
Craig ..... Psychological Medicine 5
Cripps .... Cancer of the Rectum 6
" .... Diseases of Rectum.. 6
Hare ..... Alcoholism.... Cover 1
Horwood .. Plant Life 5
Medical Directory, 1914 5
Panton .... Clinical Pathology .. 5
Sequeira .. Diseases of the Skin.. 5
Starling .... Human Physiology .. 5
System of Treatment 5
Taylor .... Medicine 5
White ..... Materia Medica, &c.. 5
Who's Who in Science, 1914 5

FROWDE AND HODDER & STOUGHTON:—
McCann .. Cancer of the Womb, &c. ..... Cover 1

HILTON & CO.:—
Ghosh ..... Materia Medica 6

PAGE

LEWIS:—
Campbell .. Headache .... Cover 1
" .. Flushing, &c... " 1
" .. Nervous Organisation of Man and Woman Cover 1

LONGMANS, GREEN & CO.:—
Hare ..... Food Factor in Disease ..... Cover 1
Herschell & Abrahams Chronic Colitis Cover 1
White, &c.. Alimentary Toxæmia 6

MACMILLAN & CO.:—
Ballance .. Cerebral Decompression in Ordinary Practice 6

MEDICAL PUBLISHING CO.:—
Lane, Sir W. A.. Operative Treatment of Fractures 6
" Cleft Palate and Hare Lip 6

NISBET & CO.:—
Lane, Sir W. A.. Treatment of Chronic Constipation 6

PAGE

NISBET—(Continued).
Romer & Creasy .. Bonesetting and the Treatment of Painful Joints.... Cover 1

SAUNDERS COMPANY:—
Dorland's Medical Dictionary Cover 1
Dorland's Illustrated Medical Dictionary 5

SPRAGUE & CO.:—
Ernst ..... Orthopædic Apparatus Guide 6

WRIGHT & SONS (Bristol):—
Mummery .. Diseases of the Colon Cover 1
Smith..... Lateral Spinal Curvature, &c. .. Cover 1

MEDICAL LIBRARIES, &c.:—
Behnke—Stammering 6
Belfast Health Journal 7
Ketley—Stammering 6
Lewis's Circulating Library Cover 1
Matthews Bros.—Wood: Application of Trusses 6

OFFICIAL AND GENERAL ANNOUNCEMENTS

APPOINTMENTS VACANT:—
Alnwick Infirmary 69
Argyle and Bute Asylum, Lochgilphead 71
Belgrave Hospital for Children, Clapham-road 69
Blackburn and East Lancashire Infirmary 69
Borough of Croydon 72
Borough of Darlington 70
Cancer Hosp. (Free), Fulham-road 66
City Fever Hospital, Birmingham 66
City of Nottingham Education Committee 68
Corporation of Birmingham City Sanatorium 71
County Asylum, Chester 68
County Asylum, Whittingham 67
County Borough of Croydon 72
County Borough of Preston 71
Coventry and Warwickshire Hospital 67
Derbyshire Royal Infirmary 68
Down District Lunatic Asylum, Downpatrick 72
East Sussex Hospital, Hastings .. 67
Evelina Hospital for Sick Children 70
Govan District Asylum, Crookston 71
Great Yarmouth Hospital 69
Greenwich Union Infirmary 69
Guest Hospital, Dudley 70
Guy's Hospital Medical School .. 70
Hamlet of Mile End Old Town 68
Hampshire County Council 71
Henderson, Lockerbie 71
Hospital for Women and Children, Leeds 69
India Office 67
Joint Counties Asylum, Carmarthen 66
Kent County Asylum, Maidstone.. 67
Kent Education Committee 70
Kent and Canterbury Hospital, Canterbury 68
Kettering and District General Hospital 69
King Edward VII.'s Hospital, Cardiff 67, 71
King's College Hospital 69
Laboratories of Pathology and Public Health 68
Liverpool Eye and Ear Infirmary.. 69
Lowestoft Hospital 67
Macclesfield General Infirmary .. 70
Manchester Children's Hospital, Pendlebury 71
Manchester Northern Hospital for Women and Children 70
Metropolitan Asylums Board 72
National Hosp. for the Paralysed and Epileptic 68
New Hospital for Women 71
Noble's Hospital, Douglas, Isle of Man 68
Norfolk and Norwich Hospital.... 68
Northampton General Hospital .. 70
Nottingham General Dispensary.. 67
Nottingham General Hospital 70
Poplar Hospital for Accidents 72
Prince of Wales's General Hosp., Tottenham 69
Queen Charlotte's Lying-in Hospital 71
Queen Mary's Hosp. for Children, Carshalton 67
Queen's Hospital, Birmingham .. 68
Queen's Hospital for Children 72
Rochdale Infirmary 70
Royal Albert Edward Infirmary and Dispensary, Wigan 70
Royal Army Medical Corps 69
Royal Hampshire County Hosp., Winchester 69

APPOINTMENTS—(Continued).
Royal Infirmary, Hull 67
Royal Isle of Wight County Hos., Ryde 69
Royal London Ophthalmic Hosp.. 69
Royal Mineral Water Hospital, Bath 70
Royal Naval Medical Service 68
Royal Portsmouth Hospital 70
Royal Surrey County Hospital, Guildford 67
Royal Victoria Infirmary, Newcastle-upon-Tyne 70
Royal Victoria and West Hants Hospital, Bournemouth 66
St. Mary's Hospital, Paddington.. 69
St. Mary's Hospital for Women and Children, Plaistow 67
St. Paul's Hospital, Holborn 71
Sheffield Children's Hospital 69
Shropshire Education Committee. 68
Somerset & Bath Asylum, Cotford. 67
Somerset County Council Education Committee 67
South Devon and East Cornwall Hospital, Plymouth 69
Southwark Union Infirmary 71
Swansea General and Eye Hospital 69
Taunton Rural District Council .. 71
Throat Hospital, Golden-square .. 69
Walsall and District Hospital 72
Warwick County Asylum 71
West Kent General Hospital, Maidstone 69
Westmorland Consumption Sanatorium and Home, Meathop 67
Whangamomona Medical Association 69
Worcestershire County Council .. 71
York County Hospital 70

ASSISTANCIES, MEDICAL 72

ASYLUMS, HOMES, &c.:—
Ashwood House, Kingswinford .. 60
Association of Medical Men Receiving Resident Patients 66
Barnsley Hall, Bromsgrove 60
Barnwood House Hospital 61
Bishopstone House, Bedford..... 60
Bootham Park, York 60
Broadlands, Medstead 66
Brunton House, Lancaster 66
Buntingford House Retreat, Buntingford 63
Camberwell House, Peckham-road 62
Cheadle Royal 61
City of London Mental Hospital, Stone 68
Clarence Lodge, Clapham-park .. 60
Colthurst House, Alderley Edge .. 60
Coppice, The, Nottingham 61
Dalrymple House, Rickmansworth 63
Dartmoor Sanatorium 64
David Lewis Colony, Alderley Edge 60
Duff House, Banff 64
Ghyllwoods 65
Grove House, Church Stretton.... 61
Grove, The, Catton, Norwich..... 61
Haydock Lodge Newton-le-Willows 62
Haynes, Brentwood 66
Helgham Hall, Norwich 60
Holmesdale, Hastings 66
Home for Epileptics, Maghull 60
Invermith Lodge Sanatorium, Colinsburgh 62
Kingsdown House, Box 60
London Fever Hospital 61
Maison de Santé de Glain-les-Liége (Belgium) 58
Malling Place, Kent 61
Manna Mead, Blackheath 66
Melbourne House, Leicester 59

ASYLUMS—(Continued).
Mendip Hills Sanatorium 66
Meyrick, Brighton 66
Middleton Hall, Co. Durham..... 60
Moat House, Tamworth 61
Mount Pleasant, Wanstead 66
Mount Vernon Hospital for Consumption 63
Mundesley Sanatorium 65
Newmains Retreat, Lanarkshire.. 63
Nordrach-on-Dee, Banchory 64
Northumberland House, Finsbury park 60
Northwoods House, Winterbourne 62
Norwood Sanatorium, Ltd..... 63
No. 709, L.O., Strand 74
Osea Island, Heybridge 65
Peckham House 62
Pendyffryn Hall Sanatorium, Nordrach-in-Wales 64
Plympton House, Plympton 61
Portsmouth Corporation Mental Hospital 60
Ruabury Sanatorium, Northallerton 66
St. Andrew's Hospital, Dollis Hill 66
St. Andrew's Hosp., Northampton 61
St. Luke's Hospital for Mental Diseases 60
Shaftesbury House, Formby-by-the-Sea 62
Springfield House Private Asylum, Bedford 61
Stocker, Craven-street 66
Stretton House, Church Stretton.. 61
The Grange, Rotherham 61
Vale of Clwyd Sanatorium 64
Warneford Asylum, Oxford..... 60
Wye House, Buxton 61
Yarrow Convalescent Home, Broadstairs 62

FINANCIAL, &c.:—
Equitable Reversionary Interest Society.. 57

HEALTH RESORTS, BATHS, &c.:—
Harrogate Hydropathic Establishment 59
Leysin, Switzerland 66
Peebles Hotel Hydropathic 59
Pegli 65
Smedley's, Matlock 59

HOTELS:—
Grand Hotel Guglielmina, Ospedaletti 65
Hotel Angst, Bordighera 66
Hotel Beau-Rivage 59
Hotel Bristol, Mentone..... 59
Hotel de la Reine, Ospedaletti 65
Knowle Hotel, Sidmouth 66
Penston Villa Quisisana 59

HOUSE & ESTATE AGENTS:—
Bray & Co., Bexhill 74
Clark & Son, New Cavendish-street 74
Ferris & Puckridge, Cheapside.... 74
Lafontaine, Gray's Inn-square 74
Ley Clark, Wimpole-street 74

LIFE & FIRE ASSURANCES, &c.:—
Prudential 57

MASSAGE:—
Harley Institute School of Massage 57
London School of Massage 57

MEDICAL ACCOUNTANTS, &c.:—
Turner 73

MEDICAL AGENTS:—
Fieldhall, Limited 75
Manchester Clerical, &c., Assoc.... 74
Medical Agency 77
Moore & Co. 72
Needes, Herbert 77
Needes, J. C. 74
Peacock & Hadley 77
Scholastic, Clerical, &c., Assoc. .. 76
Turner 77

MEDICAL SCHOOLS:—
(LONDON.)
London School of Clinical Medicine 56
West London Post-Graduate Coll.. 55

NURSING INSTITUTES:—
Co-operation of Temperance Male and Female Nurses 58
General Nursing Association 59
Hospital for Sick Children, Great Ormond-street 56
Leeds Trained Nurses' Institution 59
London Nurses' Association 59
London Temperance Male and Female Nurses Co-operation .. 58
Male Nurses Temperance Co-operation 57
Mental Nurses' Co-operation..... 59
National Hospital Male Nurses' Association 58
Nurses' Co-operation, Portland-place 58
Registered Nurses' Society..... 57
St. John's House 58
Temperance Association of Male Nurses, Ltd. 57
Temperance Male Nurses Co-operation 58
Temperance Male and Female Nurses Co-operation 58
The Retreat, York 59

OFFICIAL NOTICES:—
City of London Lying-in Hospital.. 55
Imperial College of Science and Technology 55
Laboratories of Pathology and Public Health 74
London Hospital 56
London School of Tropical Medicine 56
Middlesex Hosp. Medical School .. 56
North-East London Post-Graduate College.. 56
Queen Charlotte's Lying-in Hospital 55
Royal College of Physicians of London 55
Royal Institute of Public Health .. 75
Royal London Ophthalmic Hosp... 55
The Murdoch Trust 59
University of Cambridge 56
West End Hospital for Diseases of Nervous System 55
York-road General Lying-in Hospital, Lambeth 55

PARTNERSHIPS & PRACTICES 73

RAILWAY & STEAMSHIP CO.'S:—
Anchor Line—Winter Tours in Sunny Lands. 57
New Zealand Shipping Co. 57

SCHOOLS, PREPARATORY, &c.:—
No. 657, L.O., Strand 58

TUTORS & LECTURERS:—
Beckton 57
Gemmell 57
Med. Corres. College 56
No. 449, L.O... 74
No. 647, L.O... 73
Le Forestier—Languages .. 7
Translations 7
Schnelle 6
Weymouth .. 55

For Index to Trade and Miscellaneous Advertisements see page 4.

The Bradshaw Lecture
ON
GUNSHOT INJURIES OF THE ARTERIES.

Delivered before the Royal College of Surgeons of England on Dec. 5th, 1913,

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MR. VICE-PRESIDENT AND GENTLEMEN,—Although the practice of military surgery is confined to a comparatively limited number of surgeons, yet the choice of my subject seems appropriate, since the boundary which separates civil and military surgery is indefinable, and I myself have enjoyed some experience in either field. Again, we may not forget that many Fellows of this College, only to mention such names as those of the Bells, Guthrie, and MacCormac, have devoted their attention to this subject; while our Master, John Hunter himself, founded one of his greatest works on the observations made during his period of military service.

INTRODUCTORY REMARKS.

A certain halo of romance seems to shed itself over the subject, since the history of the surgery of gunshot wounds extends to very ancient times and brings us into contact with the most famous pioneers in surgery, while no great event in the history of the world remains unspoken of in its annals. At all periods the opportunities afforded by the field of battle have exercised a strong attraction to the surgeon, both from the instinct of patriotism and the fact that in no other branch of surgery can experience be so rapidly gained. One battle can afford more material and that of more varied nature than many years of experimental work.

The progress of military surgery has some special characters of its own, thus its practice depends on opportunities which may be few and far between, while the injuries to be dealt with undergo changes and modifications dependent upon the development of the weapons with which they are inflicted.

It is of interest to remark the varying influence of civil upon military practice and of the experience gained during wars upon the civil surgeon in the history of the past. In old days there were reasons why the military surgeon should stand out pre-eminent; the field of surgery was not wide, while the operations practised in civil work were the same which the military surgeon had vastly increased opportunities of performing. Again, the actual difficulties under which military surgery has to be carried out have offered opportunities for the observation of the powers of nature, often accidental, but none the less of immense importance in the development of the great principle of conservatism in surgery. One may mention such examples as the omission of the use of boiling oil to the wound by Paré, the substitution of the ligature for the cautery in amputations, or the evidence adduced by Hunter in favour of his opinion that gunshot wounds should not be enlarged, founded on the cases of four men who escaped being subjected to this treatment in consequence of being accidentally cut off from the army and whose wounds healed readily without any complication. More recently the same influences have had an important bearing on the application of the ordinary rules of surgery to such injuries as wounds of the arteries, fractures of the bones, and perforating wounds of the abdominal cavity.

Advances in the surgery of civil life now exercise a constant influence on every branch of military practice, beyond which intervals of peace have been utilised by the military surgeon in experimental work bearing upon the effects likely to be produced by weapons introducing new ballistic problems, and varying wounding power.

A consideration of the progress which has been made in every department of military surgery is naturally too wide a field for a single lecture. It has therefore seemed to me more convenient to confine my remarks to the subject of wounds of one series of structures, the arteries. This is, perhaps, the more fitting, since the last decade has furnished us with remarkable evidence of the amenability of the wounded vessel to other forms of treatment than that of its obliteration by the application of a gross ligature.

CHANGES IN THE FORM OF THE BULLET.

Before proceeding to the actual consideration of the wounds of the vessels, it may be useful to epitomise shortly the changes which have taken place in the bullet which produces them. These changes consist in a decrease in the size and weight, and increased stability in form and structure. With these modifications in design are associated an increase in velocity and accuracy of flight and consequent greater striking force.

The most striking modification during the last decade has been the adoption by some Powers of the pointed bullet. This alteration in the outline of the bullet is designed to overcome aerial resistance to its progress and thus obtain a greater velocity of flight and striking power. While attaining these advantages the necessary shifting backwards of the centre of gravity of the bullet increases the difficulty of maintaining flight parallel to its long axis, and experimental work has suggested that this last character would result in more serious wounding capacity, since slight inaccuracies of impact suffice to result in a sudden somersault of the bullet and a consequently greatly increased surface of resistance to its entry into the body, with attendant widening of the area of tissue destruction.

Such information as is at present to hand from the recent battlefields in the Balkans does not seem to have substantiated this assumption. Surgeons indeed appear to agree that reversal does take place more frequently, especially at long distances, that the bullet is somewhat more frequently retained in a reversed or transverse position, but although this must result in a widened area of contused tissues no very marked influence on the general character of the wounds was observed. One peculiarity mentioned by Major Birrell is of practical importance—namely, the tendency of retained bullets to travel short distances in the tissues much as a needle does. Most observers regard the wounding power of the new bullet to be about equal to that of the ogival or dome-tipped bullets of corresponding calibre. They describe a similar passage of the pointed bullet in a direct course through the trunk and limbs; but a perusal of the reports leads one to believe that so-called contour wounds of the head[1] and trunk were somewhat more common than was the case with the ogival or dome-tipped bullets used in the South

[1] Mühsam: Centralblatt für Chirurgie, 1913, No. 28 Beilage, p. 104 45 thoracic, 13 contour; 22 skull, majority contour.

African war, and this occurrence is probably to be ascribed to the decrease in stability of flight the pointed bullet possesses.

INJURIES TO BLOOD-VESSELS BY MODERN AND OLDER BULLETS.

In the case of injuries to narrow structures, such as the blood-vessels and peripheral nerves, the new bullet appears by reason of its sharp point and penetrating power to effectuate even more clean and narrow perforations than its predecessors. With regard to wounds of the blood-vessels, it is of interest to note that one observer states that of 15 cases of aneurysm treated by him the bullet was retained in more than a third of the whole number.[2] I have only come across the description of one case[3] in which the retained core of a small-calibre bullet closed the lumen of the femoral artery, this occurring in the Manchurian war.

Wounds, the main importance of which depends upon the implication of the large vascular trunks, have been a common characteristic of gunshot injuries for all time, and certain features of these injuries have undergone no material change. Thus the comparatively small tendency to be accompanied by great primary hæmorrhage, the frequency with which they are followed by secondary hæmorrhage, or the development of hæmatomata or aneurysms. The most striking feature of the vascular wounds produced by bullets of small calibre is the lessened liability to afford external secondary hæmorrhage and the greatly increased frequency in which they are followed by the development of some form of aneurysm. This change no doubt depends in some measure upon improved methods of surgical treatment, but in the main is due to the limited nature of the wound, its narrow track, its comparative asepticity, and the infrequency with which extraneous matter is introduced with the bullet.

Certain special characters of the older bullet wounds of vessels, such as the temporary control of hæmorrhage by the retained bullet, the retention of the bullet within the lumen of the vessel, or the travelling of the bullet along its course, have become far less common.

Let us now consider how far the older surgeons were justified in their opinion that primary hæmorrhage due to gunshot injuries of the vessels is to be regarded as less formidable than that resulting from injuries by other weapons. I think their opinion may be fully supported by a glance at a few specimens placed upon the table.

(*3051*). *R.C.S. Museum.*—We have here a gunshot wound of the first part of the aorta; the bullet is retained within the lumen of the vessel, while the aperture of entry is partially closed by a plug of skin and adipose tissue. The man did not die until the third day.

(*34.2*). *Museum of the R.A.M.C.*—A large lateral wound of the common carotid artery and complete division of the internal jugular vein. This wound was followed by secondary hæmorrhage on the thirteenth day, and the man did not die until after a recurring secondary hæmorrhage on the twenty-fourth day.

(*34.6*). *Museum of the R.A.M.C.*—A round-shot lateral wound of the femoral artery with complete division of the vein. Secondary hæmorrhage occurred on the eleventh day and death upon the twelfth.

It will be observed that in each of the two latter specimens the wound in the artery is partially closed by firm clot, and it is reasonable to assume that under modern wound conditions the occurrence of secondary hæmorrhage would have been replaced by the formation of an aneurysm. Again, both in the case of the wounds of the carotid and the femoral the loss of substance is not more than might be dealt with by modern methods at the period at which the secondary hæmorrhage took place.

Let us now turn to the anatomical characters of the injuries inflicted upon the blood-vessels by the bullet of small calibre. It is natural to assume that the wounds will not materially differ in nature from those observed on the surface of the body. The skin and the vessel wall possess many characters in common; both are elastic and both offer but slight resistance to the passage of the bullet, the only marked difference lying in the contractility of the artery, which tends to close and at any rate temporarily diminish the size of the opening made in its wall.

We are aware that in elastic structures like the blood-vessels the area of tissue destruction will be less extensive than one corresponding to the calibre of the bullet; also that the revolution of the bullet and the force it exerts laterally as a result of its generally conical form tend to displace the component parts of an elastic cord, such as a nerve, without free transverse division of the fibres.

The injury to a blood-vessel may be either of the nature of a contusion or a wound, while the extent of the lesion varies according to the accuracy with which the course of the vessel is traversed. With rectangular impact a notch, a clean perforation, or complete division results; when the impact is oblique, more extensive loss of substance follows, such injuries reaching their most marked degree when the bullet courses for some distance directly along the vascular cleft. It need only be mentioned that when the wound is complicated by a fracture of a bone the injury to the artery may be produced by a spicule of bone and partake of the nature of a puncture or a more or less complete laceration.

CONTUSION OF THE VESSEL WALL.

It is difficult to gauge the importance of this injury. There is no doubt that the contusion may be sufficiently severe so to damage the tissue of the vessel wall that in the event of infection and suppuration the injured area may give way, and separating give rise to secondary hæmorrhage. That this accident may occur is a common experience. Judging by my own observation, I think it is also probable that contusion may be followed by the development of a cicatrix, which permanently narrows the calibre of the vessel, and may possibly lead to its complete obliteration.

A specimen of Mr. Guthrie's preserved in the Museum of the Royal Army Medical College shows the femoral vessels entirely occluded in the neighbourhood of a suppurating bullet track passing behind them. In this instance, of course, the greater contusing power of the old leaden bullet must be borne in mind. In the case of aseptic wounds I doubt if contusions often give rise to troublesome after-results.

COMPARATIVE FREQUENCY AND RESULTS OF VARIOUS FORMS OF WOUNDS.

Some information is to hand as to the comparative frequency and results of the different varieties of wound of the vessel wall. Thus Surgeon-General W. F. Stevenson, A.M.S., in his report[4] on the South African campaign, includes the nature of the lesion

[2] Frisch: Ibid., p. 710.
[3] Kikuzi: Beiträge zur Klinischen Chirurgie, Band l., p. 21.
[4] Report on the Surgical Cases noted in the South African War, 1899–1902. London, 1905.

in 16 cases of aneurysm which underwent operation. Of these 8 were lateral wounds, resulting in 6 arterial and 2 arterio-venous aneurysms. Four were perforations, resulting in 1 arterial and 3 arterio-venous aneurysms. Four were complete divisions. Saigo[5] includes the nature of the lesion in 34 cases. Of these, 21 were lateral wounds resulting in 13 arterial and 8 arterio-venous aneurysms; 11 were perforations resulting in 4 arterial and 7 arterio-venous aneurysms; and 2 were complete divisions. In a total of 50 cases we find 29 lateral wounds = 58 per cent.; 15 perforations = 30 per cent.; and 6 complete divisions = 12 per cent. Also that perforation of the vessels more frequently leads to the development of an arterio-venous aneurysm (60 per cent.) than does a lateral injury (40 per cent.).

Naturally little information exists as to the results of incomplete lesions, but two observations of great interest may be noted. In one a graze of the femoral artery resulted in the development of a protuberance the size of a hazel nut accompanied by the signs of a traumatic aneurysm. An attempt was made to cure the condition by suturing the outer coats of the vessel over the weakened spot (Babasinoff). This procedure failed, the aneurysm again developing, after which the artery was successfully ligatured. The case is one of much interest also as demonstrating the necessity of the apposition of the intima for a successful arterial suture. In the second case (Stevenson)[6] (Case 28) a non-penetrating injury of the axillary artery was followed on the twelfth day by the formation of an arterial hæmatoma. On the fourteenth day this was laid open and a graze one inch in length implicating the outer coats of the vessel was discovered which had given way in the centre

With regard to the comparative frequency of lateral wound, perforation, or complete division, it is probable that the numbers given above are not strictly accurate, since they are founded on observations made on lesions followed by the development of aneurysms, and fail to take into account the large number of cases in which hæmorrhage either ceased spontaneously or led to death. One or two points of interest, however, arise from the consideration of Table I. together with Table II. First of all, the frequency with which any artery is hit naturally corresponds directly with its calibre and the length of its course. Secondly, if we analyse 42 cases we find that the frequency of perforation depends not only on the width of the vessel, but also on its comparative fixity of position; thus, perforation of the femoral and popliteal vessels is common, while the axillary artery, a trunk but little smaller, frequently escapes with a lateral injury.

TABLE I.—*Cases of Lateral Wound and Perforation.*

(From the Statistics of Saigo and Stevenson.)

—	Lateral wound.	Perforation.	Total.
Carotid	1	1	2
Subclavian	2	1	3
Axillary	6	1	7
Brachial	10	1	11
Femoral	7	8	15
Popliteal	1	3	4
Totals	27	15	42

[5] Deutsche Zeitschrift für Chirurgie, Band lxxxv., 1906, p. 577.
[6] Loc. cit.

The question of the frequency of complete severance of a large artery is more difficult to determine, since it is probable that a considerable proportion of the instances in which it occurs are followed by early death from hæmorrhage, but it is significant that in the series from which the above small table is taken complete division of the artery was observed six times, and that in five of these instances the popliteal was the vessel implicated; in the sixth the femoral artery was completely divided by a bony fragment from the femur. The liability of the popliteal artery to complete division is probably explicable on two grounds: (1) That the artery is commonly struck in the condition of full tension corresponding with the extended position of the limb; and (2) that except when the bullet enters from the posterior wall of the space it has to perforate resistant structures, and hence may be altered in form and wounding properties.

ANATOMICAL CHARACTERS OF THE WOUNDS.

As to the anatomical characters of the wounds we are indebted to Brentano[7] for the only accurate description I have met with. With regard to lateral wounds, he points out that the margins are tattered irregularly, giving the impression of having been gnawed out; again, that a lateral wound involving more than half the circumference of the artery gapes widely longitudinally, acquiring a greatly increased size, in consequence of the elastic nature of the vessel wall. The artery hence becomes incapable of conducting the blood and the injury is comparable to a complete division.

Perforating wounds do not separate so widely in consequence of the continuity of their margins; the loss of substance is also less, the size of the opening not equalling the calibre of the bullet. Perforations cause some obstruction to the circulation due to the escape of blood, and the effect upon the vessel is to produce some proximal and a lesser distal dilatation of the lumen.

In proceeding to a consideration of the results of these injuries, it is of interest to premise that we are here met with one of the most striking anomalies of military practice, since we are about to deal with a series of complications not one of which would be met with did not the exigencies of the work in the field render it impracticable to abide by a fundamental rule of surgery—i.e., that a bleeding vessel should be secured at the first possible moment after its injury.

PRIMARY HÆMORRHAGE.

The question as to the proportion of vascular injuries which lead to early death upon the field of battle seems one almost incapable of an answer. There can be no doubt that it is a large one, and in support of this it is only necessary to mention the fact that hæmorrhage from, or aneurysms developing in connexion with, the large arteries of the trunk practically receive no mention in the large series of cases reported from recent campaigns. Operations upon the great vessels of the neck and the limbs are frequent, but except for an occasional ligature of the external, and still more rarely of the common iliac, vessels we find no mention of the vessels of the trunk. It seems therefore reasonable to assume that wounds of these vessels lead with few exceptions to rapid death. The same result probably follows a certain proportion of the wounds of the large vessels in the limbs also.

In connexion with this subject we may conveniently consider the question of spontaneous

[7] Brentano: Archiv für Klinische Chirurgie, vol. lxxx., 1906, p. 395.

healing of the larger vessels. I think there is every reason to conclude that this may be either immediate or remote and takes place with a certain degree of frequency on the following grounds. In the first place, clinical observation of wounds traversing the course of large vessels, as the subclavian or the femoral, has demonstrated the presence of local murmurs pointing to local constriction of the vessel, also diminished pulsation in the peripheral circulation. Again, such diminished pulsation may be temporary. It may, of course, be suggested that in these instances the vessels have suffered contusion only, and that the signs are dependent on temporary thrombosis of the vessel or on pressure exercised by cicatricial tissue in the wound track on the artery. Hence the importance of definite evidence derived from observation of the conditions found in certain varieties of aneurysm.

Spontaneous Cure as an Immediate Process.

First, as to the primary occlusion of the vessel by a provisional thrombus. This has been observed in several cases where the injury has been followed by gangrene of the limb (Manteuffel, Subbotich, and others). The gangrene in such cases is comparable to that which sometimes follows primary proximal occlusion of the vessel by ligature.

Then as to immediate cicatrisation of the wound. In Surgeon-General Stevenson's report (Case 96, under the care of Dr. Archibald Young) the following conditions were found in a patient who died of enteric fever 15 days after receiving a wound which perforated the superficial femoral artery and vein antero-posteriorly at the apex of Scarpa's triangle. The wound of entry into the artery was closed by a small firm clot embedded in the posterior aspect of the sartorius; the small circular exit wound was attached to a similar opening in the opposed surface of the vein, while the wound of exit in the vein was "nearly cicatrised." No extravasated blood was present either around or between the vessels.

A more astonishing observation was made by Brentano in the case of a wound traversing the abdominal aorta just above the origin of the renal arteries, and then passing through the liver. The patient died upon the seventieth day from a subphrenic abscess in connexion with the wound of the liver. The following condition was found in the aorta. The entry wound visible on the outer aspect of the vessel was circular and looked like the proximal extremity of a small branch which had been cut off. The exit wound was slit-like in character. When the vessel was first opened the wounds were scarcely visible on its inner aspect. Both were firmly closed, while the exterior of the vessel was coated with a layer of plastic lymph, quite separate from the suppurating blood clot which lay around. This case recalls to my mind that of a patient I saw die suddenly with signs of an abdominal hæmorrhage two days after the receipt of a perforating wound in South Africa.[8]

As to the condition discovered during operations, in 5 out of 11 perforations in Saigo's series of extirpations of aneurysm, one of the two arterial wounds had cicatrised at the end of 6 months, 4½ months, 39, 37, and 25 days respectively. In one of these cases the scar bulged, and in the second a small consolidated aneurysmal sac was present at the site of the wound.

A second method of occlusion is by the adhesion of the surrounding vessels and nerves; such cases were observed by Sir W. MacCormac and Sir William Stokes. A striking instance observed by Major Holt is recorded in Spencer's "Gunshot Wounds" (p. 68).—"In dissecting out the upper end of the divided ulnar nerve in the upper arm I came across the divided brachial artery tied up in scar-like tissue. Astonishment and curiosity led me to free the proximal end, and it at once bled as a normal brachial artery would. I tied it, and to confirm matters eventually found the lower end also in the scar." Brentano, who draws special attention to this mode of healing, mentions a similar observation. It is noteworthy that in all four instances the brachial was the artery concerned.

Remote Process of Healing.

Secondly, spontaneous cure may be the terminal result in arterial hæmatomata which contract to form circumscribed traumatic aneurysms and eventually consolidate. Of this sequence of events I have seen several instances, and they have been observed by many surgeons. I think we may conclude that the opening in the artery gradually contracts, the flow of blood into the aneurysm is lessened, and consolidation of the sac follows as a result of the deposition of laminated clot.

A case of great interest is related by Saigo in which the femoral artery was completely severed by a spicule of bone. The injury was followed by the development of two small aneurysmal sacs, one on either side of the proximal end of the vessel, while the distal end was completely occluded.

Aneurysmal Varix.

Thirdly, I think the development of a pure aneurysmal varix can only be regarded as an instance of the permanent arrest of hæmorrhage by a spontaneous process of healing. In many such cases the primary absence of any trace of extravasated blood in the sheath of the vessels, except such an amount as may have ensured the firm lateral adhesions of the two vessels, points to a process resembling that following the ligature of a vessel. The opening is at first occluded by clot, formed on the margins of the wound in the vessels, which temporarily arrests the passage of the blood into the vein; this clot persists until in the process of healing the intima of the artery has become continuous with that of the vein. The provisional clot is then absorbed or washed away, as is the temporary thrombus developed after ligature, and we get the development of the characteristic thrill and murmur with the establishment of the arterio-venous communication. The period occupied by this process corresponds with the interval of days or weeks commonly noticed between the reception of the wound and the development of the purring thrill and murmur. Lastly, an aneurysmal varix may heal spontaneously many months after its development. In my book on the wounds of the South African war two instances of spontaneous cure of this nature in carotid arterio-venous aneurysms are described; the thrill and all symptoms disappearing some months after the application of a proximal ligature to the artery. A case of spontaneous cure where the communication was supposed to be between the innominate vessels is also related there, and many other instances of this sequence of events have been observed. An instance of a still more remote closure of the opening in an aneurysmal varix is recorded by Sir W. Osler.[9] The patient was seen by me in 1900 with the classical

[8] Surgical Experiences in South Africa, p. 117.

[9] THE LANCET, Nov. 1st, 1913, p. 1248.

signs of an aneurysmal varix of the axillary artery of 22 years' standing. When he died in 1909 no trace of any communicating opening could be discovered between the vessels, although both were dilated and the walls were much thickened. The drawing in THE LANCET shows the vessels in intimate relation at the point of greatest dilatation.

These cases appear to afford definite evidence of the cure of a wounded artery either by an immediate or a remote process.

THE DEVELOPMENT OF ANEURYSMS.

The frequency with which wounds of arteries are followed by the formation of the different kinds of aneurysm is not possible to determine accurately, since so large a proportion of vascular wounds in war escape record. Table II., however, shows the general distribution of the lesions in 283 cases collected from reports of the South African (98), Manchurian (121), and recent Balkan (64) campaigns. Table III. gives, in addition, a rough estimate of the proportion in which the various forms of aneurysm occurred in 162 instances:—

TABLE II.—*The Distribution of Aneurysms over the Different Arteries.*

South Africa, 98; Manchuria, 121; Balkans, 64—total, 283.

Arteries.	Traumatic aneurysms.			Total.	Arterio-venous aneurysms.			Total.	Aneurysmal varices.			Total.	Totals of the 3 varieties.	Kikuzi.	Grand total.	Percentage occurrence.
	(1)	(2)	(3)		(1)	(2)	(3)		(1)	(2)	(3)					
Carotid	—	1	—	1	4	—	—	4	—	1	1	2	7	1	8	2·8
External carotid	1	—	1	2	—	—	—	—	—	—	1	1	3	2	5	1·7
Internal carotid	—	—	1	1	—	—	—	—	—	—	—	—	1	—	1	0·35
Subclavian	—	2	—	2	—	1	—	1	—	—	1	1	4	7	11	3·88
Transversalis colli	—	—	—	—	—	—	—	—	—	—	—	—	—	3	3	0·5
Axillary	11	4	4	19	2	1	1	4	—	—	—	—	23	6	29	10·2
Subscapular	1	1	—	2	—	—	—	—	—	—	—	—	2	—	2	0·7
Brachial	6	6	2	14	2	3	—	5	—	—	2	2	21	10	31	10·9
Radial	1	—	1	2	—	—	—	—	—	—	—	—	2	5	7	2·4
Ulnar	3	—	2	5	—	—	—	—	—	—	—	—	5	4	9	3·18
Superficialis volæ	1	—	—	1	—	—	—	—	—	—	—	—	1	—	1	0·35
Interosseous forearm	—	—	1	1	—	—	—	—	—	—	—	—	1	—	1	0·35
External iliac	1	—	—	1	—	—	2	2	—	—	1	1	4	1	5	1·7
Gluteal	—	1	1	2	—	—	—	—	—	—	—	—	2	1	3	1·0
Femoral	18	3	26	47	17	2	5	24	—	4	2	6	77	26	103	36·3
Profunda	2	—	—	2	1	1	1	3	—	—	—	—	5	—	5	1·7
Popliteal	13	2	3	18	5	2	2	9	—	—	1	1	28	16	44	15·5
Posterior tibial	7	1	—	8	—	—	—	—	—	—	—	—	8	3	11	3·88
Anterior tibial	1	—	1	2	—	—	—	—	—	—	—	—	2	—	2	0·7
Peroneal	—	—	1	1	—	—	—	—	—	—	—	—	1	—	1	0·35
Internal plantar	1	—	—	1	—	—	—	—	—	—	—	—	1	—	1	0·35
Totals				132				52				14	198	85	283	

Explanation of parenthetical figures at tops of columns: (1) Stevenson's series; (2) Saigo's series; (3) Subbotich's series.

SECONDARY HÆMORRHAGE.

The decrease in frequency of external secondary hæmorrhage in gunshot wounds only brings them into line with the injuries of civil life, the decrease bearing a direct proportion to the decrease of infection and suppuration. When the small number of cases needing treatment by amputation or ligature mentioned in the reports of recent wars is contrasted with the formidable list recorded in the report of the older campaigns the change is striking indeed. It cannot, however, be too strongly urged that, although infection is less common, yet the second cause of secondary hæmorrhage—disturbance of the wound incident on the transport of the patient—exists in an equal or exaggerated degree, and is unaffected either by the anatomical nature of the wound or the method of treatment adopted.

External hæmorrhage is replaced by bleeding into the tissues, the extension of localising arterial hæmatoma, or increase of blood collections in the pleuræ, peritoneal cavity or the joints. These accidents are sufficiently common to render absolute the rule that no subject of a wounded vessel should be submitted to the dangers of transport except in the case of actual necessity, and then only with the wounded part as far as possible immobilised.

TABLE III.—*Forms of Aneurysm.*

—	Stevenson, South Africa.	Saigo, Manchuria.	Subbotich, Balkans.	Total.	Per cent.
Arterial, diffuse or localised	31	21	43	95	58·6
Arterio-venous aneurysm	33	10	16	67	41·3
Aneurysmal varix	—	5	3		
Totals	64	36	62		

It must be borne in mind, however, that these tables merely record the survival of the fittest, since they are based on cases treated in the base hospitals, and that a considerable number of small traumatic aneurysms and a still larger number of pure varices escape not only the surgeon but also any record whatever.

THE TREATMENT OF WOUNDED ARTERIES.

The question, At what moment should the

treatment of a wounded artery be undertaken? in military practice is one fraught with the greatest difficulty. Reasons have already been given for believing death from primary hæmorrhage when the great arteries of the trunk are implicated to be the common result, and to that point no further reference need be made; but in the case of wounds of vessels in the neck and limbs we know that a number might be saved who die from secondary hæmorrhage or gangrene, and that a large number develop aneurysms which need operations of some severity before they are cured.

It is clear that primary ligature of the vessel would ensure the life and avoid the dangers attendant upon the aneurysm to this latter class did not the exigencies of military practice forbid the adoption of the common rule of surgery in the great majority of instances. If the patient is bleeding seriously, manifestly the ordinary rule must be followed, but if hæmorrhage is slight or has ceased spontaneously, pressure and a first dressing will be applied and the patient sent to the rear. He now passes through the hands of the medical officers of the bearer company, the field hospital, the stationary hospital, and possibly of the ambulance train, before he reaches the haven of the base hospital, at which alone extensive operations can be performed under the best conditions.

Once entered upon, until this transitory period is ended, not only are the general conditions and surroundings unsatisfactory as far as the operating surgeon is concerned, but experience has also abundantly proved the local condition of the wound to be eminently unsuitable for direct treatment. The wound cavity contains a large amount of clot and its walls are stiffened by extravasated blood and reactionary effusion. These conditions render the employment of drainage a necessity, a provision rendering the wound readily liable to the dangers of infection during transport.

These difficulties existing with regard to the comparatively simple operation of ligature acquire still more significance in considering the far more delicate operation of suture, which requires not only greater skill, but also more satisfactory surroundings, even putting on one side the question as to whether the recent gunshot injury of the artery is in itself a class of wound suitable to primary suture as to its fitness for direct union, or as to the risks of consequent gross thrombosis of the vessel. Little actual experience of primary suture has been gained, but such as exists is not of a nature to encourage the hope of any great future for this method of treating wounded arteries in military surgery.

I think it is indubitable that in the present state of surgery direct ligation when necessary is likely to remain the only operation suitable for application to the primary injury, and this rule is still more applicable to the treatment of external recurrent or secondary hæmorrhage.

In military surgery it is, then, chiefly in the treatment of the secondary consequences of wounds of the arteries that the question of the relative applicability of ligature or suture of the vessel comes into consideration, in spite of the fact that a few isolated primary operations for suture have been undertaken with somewhat doubtful results.

Treatment of Arterial Hæmatomata and Aneurysms.

This brings us to the question of dealing with arterial hæmatomata, traumatic aneurysms, arterio-venous aneurysms, and aneurysmal varices. Both the recognition of aneurysm as a condition amenable to operative treatment alone, and every method of treatment now in use, can be traced to the most ancient times. Arterio-venous aneurysm was described by Rufus of Ephesus in the first century, while Galen in the second century speaks of it as a well-known condition. Common during the long period that bleeding from the bend of the elbow was a routine practice, its frequency diminished as its source of origin became limited to occasional stab wounds and injuries from shot guns, again to become again enormously increased in connexion with the employment of the bullet of small calibre.

The simple employment of the ligature was supplemented between the first and fourth centuries by the addition of incision combined with proximal and distal ligature of the artery by Antyllus, while Philagrius introduced the further procedure of extirpation of the aneurysmal sac. After an interval of more than 1200 years the method of Philagrius was re-introduced by M. G. Purman in 1669, who successfully treated three cases of brachial arterio-venous aneurysm by proximal and distal ligature of the artery, combined with extirpation of the sac.[10] From that period methods of treatment have varied, but no really new procedure has been employed until the application of the method of suture to wounded blood-vessels opened up a new avenue.

The history of the application of a method of suture to an artery commenced with the closure of a wound of the brachial artery by "twisted suture" on a pin by Hallowell in 1759, while lateral suture of a vein was first performed by Schede in 1882. The first lateral suture of the femoral artery was made by Postempski in 1886, and the first successful complete circular suture on the human subject was performed by J. B. Murphy in 1896 of the femoral artery by his invagination method, this operation being followed by a similar one upon the axillary artery. Since that period the technique of suture has been widely developed both in experimental work and in surgical practice, while the late war in the Balkans has allowed a fairly extensive trial of its suitability to the treatment of gunshot wounds.

The main outcome of the experience in the treatment of vascular injuries gained in the South African war was to emphasise the dangers of Hunterian ligature at the seat of election, especially in the vessels of the lower extremity, and to suggest various methods of dealing with arterio-venous aneurysms and varices. Of these latter, ligature of the artery above and below the communication, leaving the vein untouched, received the impress of official recognition, while double ligature of both vessels, proximal ligature of the artery with ligature of the vein above and below the opening (Lewtas), were performed successfully, and a number of cases of simple proximal ligature (Anel), especially in the neck and upper extremity, gave good results.

In the Manchurian campaign the chief change consisted in the greater frequency with which ligature of the vessels was accompanied by excision of the portion of the vessels involved together with the sac itself, and in Syme's modification of the method of Antyllus, in which the sac is opened prior to the application of the ligatures to the wounded vessel, called by Kikuzi "intrasaccular direct ligation." A series of results published by Saigo will suffice to illustrate

[10] A. Kohler: Archiv für Klinische Chirurgie, vol. l., p. 333, 1906.

the success with which extirpation was attended in skilled hands. (Table IV.) In Saigo's practice operation on the aneurysm was preceded by some days or weeks' digital compression, with a view to encouraging the development of the collateral circulation.

TABLE IV.—*Saigo's Series of Cases.*

Traumatic aneurysms.	No.	C.	D.	Compl.
Extirpation	15	14	1	Femoral.
Central ligature, incision, and subsequent extirpation ...	3	3	—	—
Antyllus	1	1	—	Brachial. Gangrene, amputation.
Central ligature and incision	1	1	—	—
Incision and plugging	1	—	1	Gluteal.
—	21	19	2	—

Arterio-venous aneurysm.	No.	C.	D.	Compl.
Extirpation	11	11	—	—
Ligature of artery above and below. Vein untouched ...	2	1	1	Femoral. Gangrene, amputation.
Antyllus	2	1	1	Hæmorrhage. Secondary ligation.

In the recent war in the Balkans the method of suture of the vessels has been somewhat widely employed in the treatment of the secondary consequences of wounded arteries. The results of this method of treatment in the Belgrade State Hospital have been collated by Dr. V. Subbotich, and were communicated to the Section of Naval and Military Surgery at the recent seventeenth meeting of the International Congress of Medicine. I am much indebted to Dr. Subbotich for a supplementary report regarding such of the cases as to which the result was unknown at the time his paper was written.

Direct and Proximal Ligature.

We may now proceed to compare the various methods of treatment employed during the last decade. First as to the time-honoured measure of ligature in its various applications. I think the entire concourse of surgical opinion is opposed to the operation of ligation at the seat of election. The tragic history of its employment in the treatment of secondary hæmorrhage in the older campaign has been followed in the more recent ones by an only qualified improvement in its application to the treatment of traumatic aneurysms.

TABLE V.—*Cases of Ligature in South African War.*

—	No.	C.	D.	Percentage.
Secondary hæmorrhage, direct ligation	8	6	2	25
Secondary hæmorrhage, proximal ligation	11	7	4	36·3
Arterial hæmatoma, direct ligation	27	27	—	
Arterial hæmatoma, proximal ligation	16	16	—	
Circumscribed traumatic aneurysm, direct ligation	4	4	—	
Circumscribed traumatic aneurysm, proximal ligation ...	14	13	1	
Arterio-venous aneurysm, proximal ligation	14	6	3	21·4

57·1 per cent. gangrene. 25 per cent. of these died after amputation. R., 11; amputations, 6.

In the small number of cases noted in the South African war (Table V.) we find that 36·3 per cent. of the cases of secondary hæmorrhage treated by proximal ligature died. The result in 30 cases of arterial aneurysm was better, no instances of gangrene being reported and only one death, 3·3 per cent., but in a number of these the proximal ligature was of the nature of an Anel's operation. The worst results were those following proximal ligature for arterio-venous aneurysms. Here of 17 patients 3 died, and in 8 the operation was followed by gangrene. If three operations on the carotids are subtracted we find 14 cases of ligature of arteries of the extremities with 2 cases of gangrene in the upper and 6 in the lower limb—thus a percentage of 57·1 of gangrene and 21·4 of death.

A distinction must, however, be certainly drawn between the operation of Hunter and that of Anel. I myself saw three cases of proximal ligature of the carotid followed by immediate cure of the aneurysm and remote spontaneous cure of the arterio-venous communication of two, while the same result was observed in some cases of brachial arterio-venous aneurysms where a proximal ligature was placed close above the sac. These results of proximal ligature have been fully confirmed in the Manchurian campaign. The operation of simple direct ligature may, on the other hand, be regarded as highly successful; of 31 cases of arterial aneurysm so treated and recorded in Stevenson's report all were cured.

Modified Operation of Antyllus.—Extirpation.

In the Manchurian campaign Kikuzi, Alexandrow, Koratkoff, and others employed Syme's modification of the operation of Antyllus with much success. Kikuzi,[11] who calls the method "intrasaccular direct ligature," claims the following advantages for it: 1. Ease of application. 2. The short time required for its performance. 3. The practicability of performing the operation under local anæsthesia. 4. The limited extent of the vessels excluded. 5. Few collateral branches are injured, and thus circulatory disturbance and danger of gangrene are diminished. Kikuzi employs an Esmarch's bandage in operating on the extremities or follows Syme's method of introducing a finger into a small opening made in the sac, where the elastic tourniquet is inapplicable. He records two successful cases, one of the carotid and one of the external iliac arteries, where Syme's method was employed.

In the Manchurian campaign extirpation of the aneurysm together with the portion of the vessels from which it sprang after ligature above and below the aneurysm was also employed. Saigo[12] reports the results of 26 aneurysms treated by this method, with one death (immediately following the operation), 3·8 per cent. Of the 26 aneurysms 15 were arterial and 11 arterio-venous. The series was practically unaccompanied by serious gangrene, since only gangrene of the thumb in a case of axillary aneurysm, and of the toes in a femoral aneurysm, 7·6 per cent., occurred. (Table V.) A series of 5 cases of arterial and 9 of arterio-venous aneurysm thus treated are also recorded by L. Bornhaupt, in which no single accident occurred.[13]

The procedure of extirpation, however, is a serious one, needing considerable time for its performance, and in spite of this excellent series of results, I think the cases suitable for its employment need careful discrimination.

[11] Beiträge zur klinischen Chirurgie, Band l., 1906, p. 1.
[12] Saigo: Deutsche Zeitschrift für Chirurgie, vol. lxxxv., 1906, p. 577.
[13] Archiv für Klinische Chirurgie, Band lxxvii., p. 590, 1905.

THE METHOD OF SUTURE.

Let us now proceed to consider more fully the latest addition to methods of treatment. Suture, whether lateral or circular, may well be considered the ideal procedure, since by it alone can the normal circulation be re-established and maintained, and sufficient evidence has now accumulated to allow a provisional judgment being given as to its advantages.

1. The method of suture obviates the necessity of any dependence on the establishment of a collateral route for the circulation. This even in the healthy young men, commonly the subjects of military surgery, must be regarded as an important feature, the more so that in the early stages of arterial hæmatomata blood extravasation may interfere with the compensatory enlargement of quite normal collateral systems.

2. By the method of suture no loss of length of the artery is suffered, and the least chance of destroying any collateral branches is attained, the latter point being of some weight should the suture be followed by local thrombosis.

3. By this method not only is the immediate vitality of the limb less endangered, but the chances of permanent deficient nutrition consequent on an imperfect and insufficient blood supply are lessened or abolished.

The Immediate Vitality of the Limb.

There seems no question that the first two of these propositions must be conceded; the third needs further examination. First, as to the immediate vitality of the limb. It is stated that a review of published cases shows that gangrene follows the operations of ligature in from 6 to 12 per cent. of all cases. This is probably not an excessive estimate if both traumatic and spontaneous aneurysms are taken into account, but I think if the traumatic aneurysms are considered separately, and further, if the purely arterial aneurysms are considered apart from those in which an arterio-venous communication is present, that the ligature of a healthy artery is not to be regarded as so dangerous a proceeding.

In the case of 31 direct ligations of large arteries for arterial hæmatoma and circumscribed aneurysm in the South African war gangrene did not occur in a single instance; and in 30 cases of proximal ligature for the same condition only one case of gangrene (following ligature of the femoral) occurred, 1·6 per cent., and one patient died, 1·6 per cent., from septicæmia one month after the operation, the aneurysm itself being cured. The bad results followed the operation of proximal ligature for arterio-venous aneurysms, an operation which except in some special instances should never be performed.

Again, if the 26 extirpations combined with ligature by Saigo are considered, gangrene occurred in only two instances, and here was minimal in degree, resulting in the loss of a thumb after ligature of the axillary artery, and of the toes in one case of ligature of the femoral artery.

To compare with these results we may take, first, 31 cases of suture performed in civil practice, collected by Tscherniachowski,[14] including 15 isolated sutures of the artery, 7 isolated sutures of the vein, and 9 sutures of artery and vein. Of the aneurysms treated 11 were arterial, 20 arterio-venous. Amongst these cases gangrene also occurred twice, once in a remarkable instance in which repeated secondary hæmorrhages followed suture, resuture, ligature, and amputation; and in the second as the result of an infection causing gaseous cellulitis. In the matter of gangrene these statistics show a slight advantage.

In 22 cases of arterial suture collated by Subbotich during the Balkan war gangrene occurred once after lateral suture of the popliteal artery and vein, and once after circular suture of the external iliac artery combined with ligature of the vein. In a case of incipient gangrene following a wound of the popliteal artery lateral suture failed to arrest the process. If the two cases only are counted there is a percentage occurrence of 9 per cent.

It is obvious that these numbers are far too small for any definite deduction to be drawn; again, that they probably represent only a small proportion of the cases operated upon; but they, at any rate, go to prove that under existing conditions the employment of suture has not abolished the occurrence of gangrene.

The Later Nutrition of the Limb.

As to the question of permanent lowering of the nutrition of the limb, in civil practice, given fair condition of the blood-vessels, this sequela has not been one which in the past has attracted serious attention on the part of the surgeon. In fact, I think surgeons have looked upon the ligature of a large artery as a satisfactory operation in regard to its permanent results. In military practice in my own experience I have seen bad results; thus a condition not appreciably differing from that of Volkmann's contracture of the leg in two instances after ligature of the popliteal artery for arterial hæmatoma, and again gangrene of the leg following a slight injury some months subsequently to ligature of the superficial femoral artery. In these cases, however, I think some weight must be given to the widespread nature of the blood extravasation and dissection of the limb, the unsatisfactory conditions under which the cases were treated (both the popliteal cases came from field hospitals), and perhaps to the neurasthenic state of the patient himself.

Frisch,[15] on the examination of 10 cases in which arteries had been tied at periods of from one to eight years, found only 4 sound limbs; in the remaining 6 trophic changes were present. Again, Koratkoff estimated the peripheral blood pressure in 17 patients in whom arteries had been tied, and found it to be: in 7 cases, less than half that of sound limb; in 4 cases, about half; in 4, more than half; and in 2, equal to that of sound limb; and in one of the last two cases the estimation was made only six weeks after the operation. These numbers speak for themselves, but, of course, it still remains to be seen whether a series of sutures will show better results.

Thrombosis.

Intimately connected with the occurrence of gangrene is the question of how frequently thrombosis follows the operation of suture. We know from the results of experimental work that thrombosis does occur in a certain number of instances; further, that its occurrence is determined by even small errors in an exacting technique.

Again, the clinical observation[16] of a firm thrombus 1½ cm. in length on the sixth day,

[14] Deutsche Zeitschrift für Chirurgie, Band cxiii., 1913, p. 1.

[15] Archiv für Klinische Chirurgie, Band lxxix., p. 515.

[16] Von Manteuffel: Ibi l., Band lxxxi., p. 1.

extending from the site of a lateral wound in the femoral artery and giving rise to gangrene of the leg, is suggestive of the risk of a wound inaccurately closed. A case of spontaneous thrombosis of the femoral artery after complete division, accompanied by no local blood extravasation, is also recorded by Subbotich. In this incipient gangrene was noted.

A precise determination as to the sequence of thrombosis to suture of the artery in surgical practice is hardly possible, since, even does the artery thrombose, the patient is in no worse plight than if a ligature has been applied. The only useful indication is to be sought in the peripheral blood pressure, but of this in most cases we have only the rough estimate which can be obtained by feeling the pulsation in a distal artery. In Tscherniachowski's table of 16 lateral sutures, among 14 cases which survived the peripheral pulsation is noted as weaker in two cases, while in 2 weak pulsation noted before the operation became normal after the artery had been sutured. Among 9 cases of circular suture of the artery, in 2 instances no return of pulsation in the posterior tibial or dorsalis pedis followed suture of the popliteal artery, while in 1 the renewed pulsation was observed to become weaker. In 1 case of suture of the axillary and 1 of the femoral artery pulsation returned when none had existed prior to the operation. In 4 further cases, where both artery and vein were joined by circular suture, in 1 case (Lexer) the peripheral pulse was noted to be weaker at the end of eight months, possibly as the result of cicatricial contraction at the site of union. In 2 out of 24 cases in Subbotich's paper the development of gangrene points to the occurrence of thrombosis of the artery.

Other Accidents.

Lastly, we have to consider how far the practice of suture is exempt from the other accidents which sometimes follow upon operations on the arteries. Unfortunately. not very much information is to hand on this subject. The mere failure to be able to apply the method either from the discovery of a defect too extensive to allow of repair, or from technical difficulties dependent upon the position of the wound, is of little moment, since the exploratory operation may equally well be employed for ligation of the vessel.

The more serious question of failure in competency of the suture itself, either from primary insufficiency of the stitch or from secondary infection, is more important. Among the cases collated by Tscherniachowski no such accidents are recorded, but even here the fallacy depending on the fact that unsuccessful operations are not freely published must be given due weight. Z. von Manteuffel records a case in which a lateral suture applied to the femoral artery on the sixth day leaked, and had to be supplemented by a double ligature, and here one may emphasise the fact that von Manteuffel himself has questioned the suitability of recent wounds to primary suture by reason of their contused nature. Again, Subbotich, while he records the fact that secondary hæmorrhage followed none of the 22 operations performed in the Belgrade Hospital, adds in speaking of arterial hæmatoma: "The hæmatoma must be removed, the bleeding vessels dealt with, and the cavity drained after complete closure by suture of the incision wound by other openings specially made for the purpose. In these cases secondary hæmorrhage may occur after several days and be very serious."

COMPARATIVE RESULTS AND CONCLUSIONS.

The comparative results obtained in 41 cases of ligature and 24 cases of suture in the Belgrade State Hospital is as follows: Ligature, 41 cases; gangrene, 6 cases (14·6 per cent.); and deaths, 4 cases (9·75 per cent.). One death due to softening of the brain and pneumonia after ligature of the carotid, 1 from secondary hæmorrhage, 1 from sepsis, and 1 from anæmia and exhaustion. Suture, 24 cases; gangrene, 3 cases (12·5 per cent.); and deaths, 2 cases (8·3 per cent.). These figures, while exhibiting no very striking superiority for the new method in immediate results, at least thoroughly justify its employment, and this justification may be strengthened in the future if it can be shown that the permanent result is better in regard to the condition of the limb. On this latter point I can only quote again Subbotich: "On seeing some months later cases that have been operated upon, we find *both* in cases of ligation and of suture, greater or less interference with the functions, such as muscular weakness, neurasthenia, œdema, &c. On the other hand, we find some quite ideal cases."

What conclusions are we to draw from these results? Operations for wounds of the arteries may have to be undertaken during three distinct periods, which may be classed as primary, intermediate, and secondary.

Primary Operations.

1. The operation of choice for primary hæmorrhage from a gunshot wound in the field is direct ligature. In support of this opinion may be advanced the comparative simplicity of the operation and its applicability even under adverse conditions. Primary ligation should be confined to cases in which hæmorrhage is obviously endangering life.

The objections to the method of suture are twofold; first, the local conditions are not favourable in consequence of the contused and tattered margins of the opening in the artery commonly met with. The anatomical character of the wound, in fact, is unfavourable both to the safe closure of the wound and to the avoidance of subsequent thrombosis in consequence of the impracticability of ensuring an accurate apposition of the intima. One has only to consider the fact that the comparatively slight damage attendant upon the use of toothed forceps to facilitate the introduction of the suture is generally considered enough to risk subsequent obliteration of the vessel by thrombosis to come to the conclusion that the ragged contused margins of a gunshot wound are ill-suited to suture. Secondly, although these difficulties are to be avoided in certain cases by excision of the damaged portion of the vessel and circular suture of the proximal and distal ends, yet this undertaking needs so much time, skill, and perfection in the general surroundings that it cannot be regarded as a practical procedure.

In this stage there is no doubt that a line must be drawn between the wounds of civil practice, in which suture may be advisable, and the wounds produced by bullets of small calibre. When primary operations are necessary and the wounded artery is dealt with during the first three days the difficulty of evacuating the clot may not be great, while the procedure saves much time and the general nutrition of the limb suffers less than if a secondary operation is waited for. Further, where incipient gangrene threatens, the limb may be rescued by relieving the collateral circulation from the pressure exerted by the hæmatoma. The latter

fact is especially to be borne in mind in the case of popliteal hæmatomata. (Z. von Manteuffel.)

Intermediate Operations.

2. As to intermediate operations, it has already been pointed out that the wounds are ill-suited to any form of treatment except the simplest. The evacuation of clot is difficult, the stiff œdema of the arterial wall itself, as well as that of the boundaries of the cavity (Brentano), and the probability of the necessity of providing drainage negative the chances of a successful suture, and render the prognosis even of a simple direct suture doubtful.

The experience of all recent campaigns has been to show that in the absence of secondary hæmorrhage or rapid extension of the hæmatoma the general tendency is towards contraction and localisation of the extravasated blood and to diminution in the size of the arterial wound, while the conditions improve for the successful application of treatment.

The unsuitable character of these injuries at this stage for the employment of proximal ligation at the seat of election has already been dwelt upon. It is unsafe, not only from the risk of further secondary hæmorrhage, but also because being done at a period when the conditions for the establishment of an efficient collateral circulation are bad gangrene is frequent. This has been a common result in the limbs, and no more striking example could be given than that of a surgeon in the Manchurian campaign who saw cerebral softening follow three times consecutively after ligaturing the common carotid in healthy young soldiers.

Secondary Operations.

3. Secondary operations may be undertaken at an average period of about four weeks, and practically resolve themselves into operations for aneurysms of three varieties. Each of the five methods of treatment may offer advantages under certain conditions which may be shortly stated:—

(*a*) *Simple ligature.*—Simple proximal ligature as near the aneurysmal sac as practicable has shown itself a satisfactory method of treatment for traumatic arterial aneurysms. Under certain circumstances it is likely to be still employed, either in dealing with small aneurysms or in situations where direct treatment may necessitate a prolonged and serious operation, as in the case of the carotid artery, especially when the conditions under which the operation has to be performed are not good.

(*b*) *Proximal and distal ligature, either of the artery alone or of both artery and vein.*—This method is suitable to the treatment of either arterial or arterio-venous aneurysms. Ligature of the artery alone is unsuitable to arterio-venous aneurysms or varices where there is any likelihood of the sac being in part fed by a collateral branch. If such a branch does exist the thrill of the varix will continue, and this though not a serious accident is yet undesirable. The addition of double ligature of the vein has not proved disadvantageous.

(*c*) *Syme's modification of Antyllus's operation (the intrasaccular direct ligature of Kikuzi).*—This method is applicable especially to large arterial hæmatomata, but also to recent arterio-venous aneurysms in some instances. The short length of the artery included between the ligatures, the limited amount of dissection needed to expose the vessel, and the fact that in the limbs the operation may often be performed while the circulation is controlled by an Esmarch's tourniquet are manifest advantages. Moreover, the danger of overlooking the presence of small branches feeding the sac is avoided, and mere evacuation of the clot is substituted for the troublesome dissection required if the sac is to be extirpated. This method has much to recommend it as an operation in military surgery.

(*d*) *Extirpation of the sac with limited excision of the vessels in communication with it.*—This method is applicable to the case of all aneurysms of whatever variety, where the occlusion of the vessel is not of appreciable importance to the general nutrition of the limb; practically therefore to any vessels below the brachial in the upper and the popliteal in the lower extremity. It has proved itself a highly successful procedure elsewhere, but it necessitates an often prolonged and difficult dissection and offers no material advantage over the last operation.

(*e*) *Suture of the wounded vessel, with or without extirpation of the sac.*—The relative advantages to be obtained by this method have been already discussed. If successful the result is ideal; it has not been shown to be attended by any accident to which other procedures are not liable, while even if thrombosis occurs and robs the operation of its crucial advantage the patient is not worse off than if ligature had been performed. Theoretically its applicability to the treatment of any of the forms of aneurysm is limited only by a lesion the situation or the extent of which prevents accurate and secure apposition, and even this difficulty is to be overcome by the insertion of an autoplastic graft from a neighbouring vein. Again, in certain situations, such as the neck, it obviates a risk of irrecoverable damage to the brain. Practically, however, the necessity of an aseptic field of operation, the existence of perfect operative surroundings, and a really high standard of manipulative skill on the part of the surgeon, must at present considerably limit its adoption in the routine of military surgery. If adopted, the operative technique devised by Carrel appears to offer the best chance of success. In old-standing cases of traumatic, arterio-venous aneurysms, or aneurysmal varices Matas's arteriorrhaphy or the Matas-Bickham operation may be adopted.

Increased Conservatism.

A consideration of the wounds of arteries by bullets of small calibre and their treatment shows that progress in this branch of military surgery has taken the direction of increased conservatism and expectancy. In this it is no exception to that observed in every other chapter of the subject.

Non-interference in fractures has become almost the general rule, operations on joints have decreased in number almost to a vanishing point, injuries to the nerves are seldom the subjects of primary operative treatment, and we have seen that those of the vessels come into the same category.

Still more striking is the expectant attitude maintained by the surgeon in the case of wounds traversing the great body cavities, in all of which primary operations have become progressively fewer.

THE COLLET MEMORIAL, WORTHING.—At the Worthing Hospital on Dec. 5th a brass tablet was unveiled to the memory of Mr. A. H. Collet. Mr. Collet was an honorary medical officer of the institution from 1871 to 1909 and chairman of the committee of management 1908–09, and in appreciation of the great services rendered by him to the institution the sum of £337 8*s.* 6*d* was collected, the bank interest swelling the sum to £359 14*s.* 8*d.* The memorial consists of complete X ray apparatus at a cost of £244 18*s.*, and the partial installation of the electric light throughout the building swallowed up the balance.

ON THE

DIAGNOSIS, PROGNOSIS, AND TREATMENT OF SYDENHAM'S CHOREA.[1]

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AMONG the many features of this disease I have ventured to select for special consideration its diagnosis, prognosis, and treatment, believing that their importance in practice will justify the choice, and knowing that you can all supplement my remarks by personal experiences, which I hope you will allow me to garner before the meeting ends. When the disease is well developed and exhibits the symptoms of its classical form, its recognition is attended with but little difficulty. The pseudo-purposive movements, grimacing, alteration in speech, and emotionalism make up a clinical picture which is usually distinctive. It is at its onset and at its close that doubt is most likely to arise.

Diagnosis.

Attacks of chorea have very small beginnings, and it is by no means easy to fix the time of onset of the malady. The choreic child is often highly strung, easily frightened, and as easily elated; one who is subject to night terrors, is afraid of the dark, and very imaginative. She is wont to people the darkness of her bedroom with the products of her active brain or the evil characters of her stories, for she is often a voracious reader. The early phases of chorea are marked by an exaggeration of this state, or by what may be called a condition of "psychical unrest." The child begins to get out of the control of her parents or teachers. She is inattentive in class, forgetful, and disobedient. Her powers of concentration lessen, and her brains go wool-gathering on the slightest provocation; every little occurrence diverts her mind. Her school work deteriorates, the shortcomings being particularly noticeable in arithmetic and writing. Her sums are all wrong; her figures and letters are badly formed, irregularly spaced, and sloping at various angles. This change in writing and arithmetic may often be noticed some weeks before erratic movements are obvious. What wonder, then, that her teacher sometimes metes out a punishment which he believes to be condign, but which so accentuates the attack as to make it obvious? What wonder, also, that the parents frequently ascribe the malady to admonition or punishment at school? At home a like fate may await her, for the mother often makes long complaint when the child is first brought for treatment, that she has been spiteful, mischievous, irritable, and sulky—indeed, that she can "do nothing with her."

The question arises, "How much nearer to the truth can *we* get by a medical examination than the parent or the teacher?" A little fidgetiness or a little grimacing may put us on our guard. The movements may need to be looked for. If the child be told to put her hands out straight in front of her, the arms outstretched, a little involuntary movement of the fingers may be detected; if at the same time she be asked questions or induced to repeat the alphabet or some simple verse, the movements may be more active, and twitchings of doubtful import may become more distinctive. Slight evidences of muscular weakness may be noticed also, "wrist-drop" may appear, the head may fall forwards, and the shoulders stoop. The weight of the body may be frequently changed from one leg to the other. Perhaps movement of the lips or tongue may evoke clucking or chirping noises, which are quite characteristic.

Examination of the heart may reveal slight abnormalities. It may be rapid or irregular, and the first sound may be short, sharp, and resembling the second. Perhaps a systolic murmur is audible, or a so-called reduplication of the second sound at the apex. The dulness may be slightly increased. If rheumatism has previously damaged the organ, signs of this may, of course, be present. At this stage the eye phenomena which I have described may help considerably in the diagnosis, for they often appear before the disease is well developed. They relate to the pupils. These may be unequal in size, to become equal again when the attack is over. The larger pupil may react to light and to accommodation more slowly than its fellow, and shows a greater feebleness in its reaction, perhaps remaining stationary or even dilating again whilst the other is still contracting. As well as change in size and change in reaction there may be also change in shape, one or more pupils becoming ovoid or irregular during the attack. Eccentricity may be noticed, both pupils or one ceasing to occupy the centre position and travelling still further afield when they react. Perhaps the most characteristic eye phenomenon is hippus, the pupillary margin of the iris oscillating backwards and forwards when accommodation is attempted or a light shone into the eyes. These ocular signs are by no means always present, but if obtained they bear out the inferences which have been made from the slight fidgeting movements, the slight signs of weakness, the psychical disturbances, and the early cardiac manifestations.

There is a form of chorea in which these mild symptoms are found alone and which may never develop into a more definite attack. This "latent" chorea, as Miller has called it, is often overlooked. It may be present for many months either between more serious attacks or quite independently. As means to a diagnosis the family history should be taken into consideration, and any personal history of rheumatism. It must not be forgotten that the evidences of rheumatism in such cases may have been very slight, and if considered alone, of doubtful value, but together provide ample corroboration. Such are joint and muscular pain and stiffness, sore-throats, anæmia, epistaxis, headaches, and epigastric pain.

When the disease is more developed and the characteristic movements are patent to all who look, perhaps there is no condition for which it is so often mistaken as tic, or, as it is more commonly called in children, "habit spasm." No doubt the confusion in terminology has done a good deal to foster this misapprehension, for chorea gravis is not what we now call chorea, but a complex form of tic, and St. Vitus's dance is a name which has been used indiscriminately for both conditions. In straightforward cases, I think, there should be little difficulty in making the distinction. The movements are dissimilar, for whilst in tic there is a continual repetition of the same movements, no matter how complicated they may be, in chorea it is impossible to anticipate what the next action will be. There is no regular sequence

[1] A paper read before the South-West London Medical Society on Nov. 14th, 1913.

in their production and no limit to their variations. The same is true of the grimacing. In tic a single movement or series of movements, such as blinking the eyes, shaking the head, nodding, twitching the mouth, &c., is repeated again and again. In chorea the whole gamut of the emotions may be reflected in the face in ever-changing order. In some cases, however, more difficulty may be encountered. This is particularly so when chorea and tic are present at the same time, the chorea being slight. The tic may obscure the clinical picture and the associated chorea escape detection. This combination is not so very rare, for the same type of child is prone to both affections. Again, in "residual" chorea, when the active stage of the disease is over, the movements may gradually become automatic, and the choreic child become in very truth a *ticqueur*, entering upon a state of chorea-like automatism which may persist for years.

The involuntary "athetoid" movements sometimes seen in cases of cerebral diplegia may be confused with those of chorea, but here the stiffness of the limbs, the exaggerated reflexes, the extensor plantar responses, the history and possibly the mental condition soon serve to put one on the right track. I have known meningitis and encephalitis in the early stage mistaken for chorea by very competent observers. When the vertex of the brain is primarily affected the convulsive movements of cortical irritation may very closely resemble those of severe chorea, but time soon corrects one's early impressions, bringing, as it does in the former case, rigidity, deepening unconsciousness, cranial nerve paralysis, optic neuritis, and the whole symptom-complex of meningitis. If it is important to dispel doubt quickly lumbar puncture will complete the diagnosis.

The paralytic form may escape recognition if the case is not seen in the early stages. After a period, during which the usual choreic movements have been present, the child lies helpless, unable to move her limbs, to lift up her head or to change her position. Aphasia is usually present, and there may be incontinence of urine and fæces. By no means under her control is she able to signify her wants. If she is lifted out of bed the limbs fall down and the head drops back much as occurs in early infancy. The muscles are very soft and flabby, so that the name "chorea mollis" is sometimes given to this form. The knee-jerks and other tendon reflexes are usually absent. The condition may persist for months. In such cases the diagnosis from some form of toxic neuritis has to be made. A history of previous choreic movements is of great value. Even when the paralysis is marked, by exceptional exertion some erratic movements of the hands may be recognised, whilst grimacing is not usually in complete abeyance. The presence of aphasia aids the diagnosis, and also the absence of loss of sensation, whilst the feel of the muscles is very characteristic. From diphtheritic paralysis the case may be diagnosed by the absence of ocular, palatal, intercostal, or diaphragmatic paralysis. In the paralytic form the degree of toxæmia may be very great, and the appearance of the patient may almost suggest that of typhoid fever. There may be much prostration, a very coated tongue, sordes on the lips and tongue, mental derangement, perhaps accompanied by hallucinations, and a considerable degree of fever. Here, again, the history of previous choreiform movements and their persistence to a very slight degree will usually serve to establish the diagnosis. The curious cry of chorea—like that of an animal—may recur again and again.

Prognosis.

It is generally agreed that the prognosis of chorea is very favourable, although it is impossible to fix the probable duration of an attack with any degree of precision. Six weeks is often held to be the minimal time during which it continues, but this, I think, is too short in the majority of cases and takes no account of the initial period before the symptoms are well marked. The most severe cases often terminate the most abruptly, and those with an extreme degree of movement frequently return to complete health in a much shorter time than others of very moderate severity. The paralytic and toxic types are apt to be long drawn out, but recovery almost always follows in the end, despite the serious nature of the condition. The latent form is liable to persist for months, the even tenour of its way being broken by more definite attacks. Death by exhaustion is a rare occurrence in the cases associated with a very marked degree of movement. Perhaps the two most important questions to ask in such cases are with regard to sleep and feeding. As long as the child is sleeping well, and can be fed naturally, no untoward result need be feared. In the rare cases where serious cardiac disease, such as myocarditis or pericarditis, accompanies the chorea the outlook is very grave. Speaking generally, the condition is serious, not from its immediate danger to life, but because of its rheumatic origin, its chronicity, and its tendency to recur. In this way it interferes greatly with school life, hampers education, and keeps the child below the standard of her fellows, although she is often endowed with more than the average number of talents. Valvular disease may start insidiously, and is often of a slowly progressive form, bringing with it the probability of repeated cardiac failure and chronic invalidism in later life. Poynton has remarked the particular association of chorea with persistent tachycardia and a progressive mitral stenosis.

Treatment.

The essential part of treatment during the active stage is *rest* both for the body and for the mind. The child should be put to bed in a quiet room, preferably darkened. When other children are treated in the same ward screening is distinctly advantageous. If the movements are so severe that the child is in danger of hitting and bruising herself or of falling out of bed, the sides of the bed should be raised and padded. Failing this, it is wise to make up a bed of considerable dimensions on the floor. All sources of excitement should be prohibited, and visits of friends and relatives should be avoided as far as possible. It is easily observed in hospital practice that on visiting day the distress caused by the arrival and departure of the relatives is followed by a period of enhanced excitability, and any entertainment, such as a birthday party or Christmas tree, has a similar effect.

Diet.

There is no need to restrict the diet; the appetite is usually good and food is taken readily. It must be given in fluid or semi-solid form, however, for mastication is far from easy, and meat, if not minced finely or pulped, is apt to be swallowed in large indigestible lumps. In more severe cases

swallowing may be difficult, and food in jelly form is more suitable. Such are firm custards, jellies (in which pulped meat may be suspended), junkets, &c. In the worst cases it may be necessary to feed by a nasal or œsophageal tube.

Medicinal.

I do not recognise a specific remedy in the treatment of chorea. I think you will agree that we have all seen cases which appeared to react quickly to a particular drug, whilst other cases apparently analogous were uninfluenced by it. In some cases after a short rest in bed the symptoms rapidly and unexpectedly subside; in others, apparently similar, the chorea persists in spite of the use of several therapeutic agents. There is a logical basis for the administration of sodium salicylate or aspirin because of their effect upon rheumatism—and we most of us regard chorea as a rheumatic manifestation; but, again, it must be confessed that in following a long series of cases treated in this way it is difficult to be sure that these drugs are capable either of diminishing the severity of an attack or of shortening its duration. However, I usually prescribe one of these drugs, for they are accredited with striking at the root of the disorder—namely, rheumatism—and by their administration one may hope to ward off further rheumatic manifestations. They are especially indicated if the temperature is raised, and should be pushed in sufficient doses to bring it down to normal. Dr. D. B. Lees advises that 400 to 500 grains of sodium salicylate should be given in 24 hours, and has himself given even more. Speaking with all due deference, I cannot say that I have found that these large doses have a better effect than others of more moderate size. If salicylates are used, whether in large or small doses, certain precautions should be taken to avoid poisoning symptoms. Those which are most to be feared are due to acid-intoxication, and resemble somewhat diabetic coma. The child becomes drowsy, her respirations deep and noisy (air hunger), vomiting occurs, the breath is sweet from the presence of acetone, and acetone and diacetic acid are found in the urine. If the salicylate is not discontinued the child may sink into coma and die, though this is a very rare occurrence.

These symptoms may be avoided if two precautions are exercised—first, the bowels should always be kept well open; and, secondly, twice as much sodium bicarbonate should be given as sodium salicylate. Before beginning salicylate treatment it is well to administer a purgative, and the bowels should have been opened within the 12 hours preceding any increase in the dose. By attention to these details all anxiety concerning acid-intoxication disappears.

Arsenic is perhaps the drug which is used next most frequently in the treatment of this condition, and some authorities state that it should be pressed until symptoms of arsenical poison supervene. There are two ways in which it is usually given—one in very large doses for a short time, until toxic symptoms arise, and the other in smaller doses for longer periods. I cannot say that I have been impressed by the value of the drug, whilst it has been my unfortunate experience to encounter more than one case in which arsenical neuritis was produced—a condition which takes far longer to get well than that for which the drug was given.

During the time that I was medical registrar at the Hospital for Sick Children, Great Ormond-street, I had the opportunity of watching the effect of treatment by drugs on chorea. In one ward very large doses of sodium salicylate were being given in every case. In another arsenic was extensively tried, whilst in a third no drug treatment was relied upon, and many of the patients received no so-called specific for the disease. Two years' observation of the cases in the different wards failed to convince me that the patients improved more rapidly in one than in another, and, indeed, some of the most satisfactory cases were those in which no special drug took any part in the treatment. Chloral and bromides are particularly useful where there is loss of sleep, and have a very special indication in those patients who, with extremely active movements, begin to show signs of exhaustion from loss of sleep. When used for these particular cases I believe that sedatives, of which these two are examples, are of great value. Another measure of great assistance in such cases is the hot pack.

I have been able to watch the effects of treatment by chloretone, a drug which has been advocated strongly by Dr. Essex Wynter for this condition. Again, I must confess to a failure to recognise any great advantages accruing. If the drug is pushed the children become very drowsy, and no doubt movements are less as the result; but it is questionable whether the good effects warrant this procedure except in cases of great loss of sleep, such as those which react to other nerve sedatives and the hot pack. Ergot has been recommended by Dr. Eustace Smith. My experience of it is very limited, but as far as it goes it agrees with that of others who have written on the subject, and who have been unable to obtain his good results.

After-Treatment.

The after-treatment of chorea is almost as important as the treatment of the acute attack. There comes a time when the active stage is over, but the child lies in a listless state with general muscular feebleness and perhaps slight movements. Further rest in bed produces no improvement. At this stage it is advisable to encourage the child to perform voluntary movements and to re educate its coördination. Massage and passive movements also play a useful part at this time. Many simple devices may be employed to re-establish coördinated movements.

At the beginning of this form of treatment such simple exercises as apposing the corresponding fingers of the two hands or touching the nose with each finger in succession are useful. While the patient is still in bed the following exercise may be used: heel to toe, heel to shin, heel to knee, first with one leg and then with the other. Afterwards somewhat more complicated movements may gradually be introduced, such as placing a cribbage-peg into every second, every third, or every fourth hole, games of draughts, halma, dominoes, and the like. When the patient is out of bed coördination of the legs may be re-educated by getting her to walk along a straight line, on chalk dots, or on certain parts of the pattern of the carpet. These are only a few examples of many exercises which may be devised with a little ingenuity. By such means the period of convalescence may be shortened materially, and the incidence of residual chorea and choreiform automatism considerably diminished.

Queen Anne-street, W.

OIL-ETHER ANÆSTHESIA.[1]

BY J. T. GWATHMEY, M.D.

OIL-ETHER colonic anæsthesia is an evolution from intravenous anæsthesia. In developing the technique, however, full advantage has been taken of all that has been written on rectal anæsthesia, as revived by Cunningham, of Boston, and continued by Sutton, of Kansas City, when an interne at Roosevelt Hospital. The animal work under the direction of Professor Wallace in the pharmacological laboratory of New York University and Bellevue Medical College has already been reported. Carron oil has been discarded entirely, and olive oil is now used exclusively, the resulting anæsthesia not being followed in any case by diarrhœa or bloody stools. The cases in which olive oil was used seemed to have less nausea and vomiting than those in which other oils were used. This verifies the work of Graham relative to restoration of the opsonic index by the absorption of olive oil into the system after operation.[2]

The advantages claimed for this method of anæsthesia are: (1) The element of apprehension and fear caused by placing a mask over the face is avoided; (2) no expensive apparatus is required; (3) the after-effects are reduced to a minimum; (4) a more complete relaxation is secured than with any other known method; (5) the limits of safety are widely extended compared with other methods; and (6) a more even plane of surgical anæsthesia is automatically maintained than is possible by any inhalation method—unless administered by a skilled anæsthetist using a perfected apparatus.

These propositions have been demonstrated in about 100 cases, the ages ranging from 4 to 71 years. In all the cases the operations have been witnessed by members of the profession, in one instance by 40 physicians and surgeons. In most cases careful blood and urine analyses were made before and after operation. The blood pressure was taken during the operation. Some of the patients were also carefully examined with the proctoscope to note if any inflammatory disturbances followed. None of these examinations showed any contraindications. Patients who had been previously anæsthetised by other methods expressed themselves most enthusiastically in its favour.

Reports of Cases.

The following cases illustrate the dangers to be avoided and the doses to be employed:—

CASE 1.—Boy, aged 10 years; operation for hydrocele and circumcision. Sulphate of morphine, 1/12 grain, was given hypodermically 30 minutes before the operation, and also a 5 grain chloretone suppository; 75-100 c.c. of a 75 per cent. mixture were introduced very slowly, the patient falling asleep before the full amount was introduced, sleeping quietly through the operation, and making an uneventful recovery.

CASE 2.—In a girl, 9 years of age, 100 c.c. of a 75 per cent. solution were given with no preliminary medication. The child complained slightly as the mixture was administered. The operation was for adenoids and enlarged tonsils. The relaxation was perfect, and she left the hospital five hours after the operation.

In children aged 4 to 8 years a 50 or 55 per cent. solution of ether in olive oil has been easily retained, without any preliminary medication, and has been followed by satisfactory anæsthesia in 10 to 20 minutes. In adults 8 ounces of ether, with an equal amount of oil, were placed in the rectum with no anæsthetic effect whatever.

Several other cases of different operations on children have been reported by different surgeons, who expressed themselves unqualifiedly in favour of this method of anæsthesia.

CASE 3.—On Nov. 18th a woman, aged 38 years, weight 125 lb., was operated upon at the Presbyterian Hospital by Dr. Forbes Hawkes for carcinoma of the breast. She was given 1/6 grain of morphine and 1/100 grain of atropine hypodermically; 5 grains of chloretone, dissolved in 2 drachms of ether and mixed with 2 drachms of olive oil, were introduced into the rectum 30 minutes before the operation. Eight ounces of a 75 per cent. mixture were introduced into the rectum in six minutes' time. The patient was in surgical anæsthesia four minutes after the total mixture had been introduced. Three ounces were drawn off during the operation, as the patient seemed too deeply narcotised. The anæsthesia was perfect in every respect, the patient breathing quietly as in natural sleep during the entire operation. An uneventful recovery with no nausea or vomiting followed. Blood and urine analyses proved negative.

A similar case was operated on by Dr. Cantle at the New Rochelle Hospital with equally gratifying results. In this instance no suppository was used, and there was a slight complaint of discomfort in the rectum as the mixture was introduced. The patient, who had been operated upon twice previously under inhalation methods, stated that if compelled to undergo another operation the oil-ether would be the choice of methods. The former patient did not complain or in any way show that the introduction of the mixture was appreciable, this freedom from discomfort being, in the author's opinion, entirely accounted for by the administration of the chloretone.

CASE 4.—Operation for abdominal hernia by Dr. Bodine at the New York Polyclinic Hospital. The patient, a woman aged 37 years, weight about 150 lb., was given ¼ grain of morphine and 1/150 grain of atropine 30 minutes before the operation. At the same time a solution containing 10 grains of chloretone and 4 drachms of ether with an equal amount of olive oil was introduced into the rectum. Just before operation 8 ounces of a 75 per cent. solution were given to the patient in bed. She sank into deep surgical narcosis before the full amount (8 ounces) was introduced. A slight cyanosis indicated an overdose, therefore 3½ ounces were drawn off, as the patient was placed upon the operating table. The relaxation in this instance was perfect; pulse and respiration were about normal. The patient slept for six hours after completion of the operation and awoke without nausea or vomiting, in a perfectly satisfactory state in every respect.

Watchfulness must be exercised at all times, as in other anæsthesias, the chief danger being respiratory arrest, as shown in the following cases:—

CASE 5.—A woman weighing less than 100 lb., about 30 years of age, was operated upon for pelvic cellulitis. She was given ¼ grain of morphine and 1/150 grain of atropine hypodermically, and a suppository containing 20 grains of chloretone as preliminary medication. Eight ounces of a 75 per cent. solution of ether in oil were given as the anæsthetic. This patient evidently received an overdose of preliminary medication, also of the anæsthetic. Respiratory arrest occurred a few minutes after she was placed upon the operating table. Artificial respiration, stretching of the sphincter, and the intravenous introduction of 1000 c.c. of normal saline were employed. A bag containing a small amount of carbon dioxide was then placed over her face, whereupon respiration recommenced immediately. During the time of this respiratory arrest, which, according to the operating nurse, lasted eight minutes, the pulse was full, regular, and approximately normal. The colour of the lips

[1] Being an abstract of a paper read before the New York Society of Anæsthetists on Nov. 20th, 1913.

[2] Graham: Journal of the American Medical Association, March 26th, 1910, p. 1043.

and tongue was good. The operation was satisfactorily performed and the patient was returned to bed. An uneventful recovery is recorded in this instance, with no nausea, vomiting, or other ill-effects.

In a case of excision of the tongue, floor of the mouth, and glands of the neck for concerous growth the operation lasted nearly three hours. At the end of one hour there was stertor which perceptibly increased until respiration ceased for three minutes. The rectum was washed out with cold water, and as much as possible of the mixture was withdrawn. Respiration recommenced without anything else being done, and the operation was completed without further interruption. An inhalation anæsthetic would have undoubtedly increased the engorgement and congestion usually following such cases. This case illustrates that if stertor occurs and the reflexes become dull (especially the lid reflex), it is an indication of an overdose and the rectum should be immediately washed out and one or two ounces of oil introduced.

No deaths can properly be credited to this method, although one patient succumbed within 24 hours after having fully recovered from the anæsthetic. In the opinion of the surgeon and the coroner the conditions found post mortem fully accounted for the death. At the commencement of the series in two instances unpleasant symptoms occurred on the introduction of the anæsthetic, and a supplementary anæsthetic was required. These patients received the anæsthetic in the dorsal position, which has since been abandoned. With improvements in technique no untoward incidents or failures have been recorded.

Physiology.—Indications and Contraindications.

The breathing in all instances is perfectly normal. If stertor commences it indicates unnecessary deepening of the anæsthesia. Cyanosis should not occur; if present it indicates an unnecessary depth of anæsthesia. The reflexes are quite active, especially the lid reflex. The pulse is normal, or only slightly accelerated, depending upon the preliminary medication. The face is never flushed, as with ether given by inhalation.

All these conditions result from the method of introduction. As the ether separates from the oil after its introduction it assumes the form of a gas and is taken up by the blood. It then passes through the lungs, where a part is excreted; the remainder is immediately resorbed, and thence reaches the brain. As a large quantity is lost by exhalation, the brain is never so deeply narcotised as when the anæsthetic is administered by inhalation, this probably accounting for the wide latitude of safety.

In inhalation methods the higher centres of the brain are first affected. The first symptom noticed by patients in the oil-ether colonic method is loss of sensation in the lower extremities, showing a sensory paralysis, first of the extremities, the higher centres of the brain being the last affected. This observation seems to be verified by the fact that consciousness is regained long before the sensations of pain are manifested. This last observation opens up a wide field for investigation and research, since we now know that ether can be introduced into the system without its nauseating effects being manifested. In a 50 or 60 per cent. solution it may be administered for the relief of pain, just as we would use a hypodermic injection of morphine, with the same degree of assurance and without the possibility of an injurious habit being acquired.

The method is especially indicated in bronchoscopic work and in operations upon the head and trunk; also in cases of Graves's disease and similar conditions where the element of fear is a dominant factor. It has been demonstrated conclusively that we can administer it with confidence to those patients who have suffered much nausea and vomiting from the previous administration of ether anæsthesia. It may be positively asserted that the ether is not so irritating when given in this way as by the usual inhalation method. It has been given to a consumptive having hæmorrhages from the lungs, at irregular intervals, with no deleterious effects.

If these facts are borne in mind to modify our conclusions we may state that it would be contraindicated in most cases where ether is contraindicated; also in colitis, hæmorrhoids, fistula in ano, or other pathological conditions of the lower bowel. Even where no pathological condition exists, if the patient complains upon its introduction, this would also be a contraindication.

Combined Methods.

Those who are wedded to either spinal or intravenous anæsthesia will welcome oil-ether as fulfilling all the requirements of these methods without the possibilities of infection or other serious trouble. The combined method, as I have outlined it, will also attract those who wish for such simplicity of administration and directness as is afforded by the drop method of ether anæsthesia. Nitrous oxide and oxygen can be administered in a much greater number of cases with fewer possibilities of discomfort when used in combination with one-half of the oil-ether mixture required for full anæsthesia. The relaxation obtained is more satisfactory than with nitrous oxide, oxygen, and ether given by inhalation. For endotracheal anæsthesia, in addition to the oil-ether in the rectum, any pump that will deliver sufficient air to maintain the necessary positive pressure in the lungs will be the only apparatus needed.

I particularly wish to emphasise, however, that the combination of oil and ether can be safely introduced into the system and that the anæsthetic is always under control. The reasons for this are: (1) The anæsthesia is automatically safeguarded by the gradual and equal absorption of the ether from the colon and at the same time its rapid evaporation from the lungs; (2) the affinity of the oil and ether for each other.

In a former paper I stated that "to a practitioner compelled to work alone this method would be of inestimable benefit." From experience I find that for a practitioner so circumstanced a 55 to 65 per cent. solution of ether and oil would be safer, allowing 15 or 20 minutes for the mixture to have its full physiological effect and then supplementing this, if necessary, with a few drops of ether on a mask. This would be better than getting the patient deeply under with a 75 per cent. solution, possibly having to withdraw some of the mixture if the patient was too deeply narcotised. This combined method would also apply to hospital internes and others who have not had extensive experience with anæsthetics. To anyone compelled by circumstances to place the narcosis in the hands of a layman or one unskilled, this combined method would be safer than inhalation anæsthesia exclusively.

Percentages and Amounts Employed.

In using the oil-ether method alone, the anæsthetist must have well in mind the physiology, as

outlined above, in order to avoid mistakes. The following rough outline will aid in deciding upon the percentages and amounts to be used. For children under 6 years of age a 50 per cent. solution should be employed, allowing 1 ounce for every 20 lb. of body weight; this mixture is non-irritating, and no preliminary medication is required. For patients from 6 to 12 years of age, use a 55 to 65 per cent. solution, without preliminary medication, keeping the patient quiet, and allowing 20 to 30 minutes for the full effect; allow 1 ounce for every 20 lb. of body weight, as before. For patients from 12 to 15 years of age, use the same percentages and amounts, with possibly the addition of 1/12 grain of morphine and 1/200 grain of atropine, given hypodermically as a preliminary. From 15 years upward a 75 per cent. mixture is employed, the amount and preliminary medication varying with the size and general condition of the patient, and the same rule being followed as to quantity—that is, 1 ounce for every 20 lb. of body weight. Thus we see, for an adult weighing about 160 lb., 8 oz. would be required. This represents the usual dose for the average patient.

The administration of any preliminary medication will always vary, depending largely upon the opinion of the surgeon or anæsthetist. For adults I usually employ 5 grains of chloretone, dissolved in 2 drachms of ether and mixed with an equal amount of olive oil, given per rectum 30 minutes before the operation. In addition to this ¼ to ½ grain of morphine, with 1/100 grain of atropine, is given hypodermically at the same time—the larger doses being given only to athletes and alcoholics.

Technique and Apparatus.

The patient should receive the usual medication as for any operation, avoiding purging. In addition, the colon should be thoroughly irrigated until the return is clear. A rest in bed of two hours or more before the preliminary medication is required.

The apparatus required is very simple—a small catheter and funnel, two small rectal catheters inserted side by side, and a towel placed over the face from time to time to prevent the dilution of the anæsthetic in the air passages. When the patient is satisfactorily narcotised the towel is withdrawn.

The mixture (2 ounces of olive oil and 6 ounces of ether) is given with the patient in bed on the left side, in the Sims position, a convenient lifter having previously been placed under him. It is not always necessary that he should know that an anæsthetic is being administered. A small catheter, well lubricated, is then inserted 3 to 4 inches within the rectum; to this catheter a funnel is attached. The mixture should be poured slowly into the funnel, taking at least 5 minutes for 8 ounces, the usual amount. It is best not to withdraw the tube until the patient is partly unconscious and the muscles are relaxed. From 5 to 20 minutes (according to the percentage used) should be allowed for the anæsthetic to take effect before the patient is moved. The patient should then be lifted gently on a stretcher and carried to the operating-room. The anæsthetist at this time should see that a clear airway is maintained when necessary by placing a finger under the symphysis of the lower jaw. If the patient shows signs of approaching cyanosis, loss of lid reflex, stertor, or embarrassed respiration of any kind, 2 or 3 ounces of the mixture should be withdrawn by the small rectal tube placed 4 to 6 inches up the rectum. If the breathing is easy and regular, with the reflexes active, the patient will be found to be relaxed and in surgical narcosis as far as the operation is concerned.

At the end of the operation the two small rectal tubes should be placed in position, as high up the colon as convenient without traumatism, and cold water soapsuds injected into one tube and drawn off through the other; 2 to 4 ounces of olive oil should then be introduced into the rectum and the tubes withdrawn. The patient should be gently returned to bed, with as little jolting or handling as possible, the room should be darkened, and free ventilation secured.

In some of the cases novocaine was injected locally at the site of the operation after the patient came on the operating table; in other cases no local anæsthetic was used. Where this is done and the oil-ether rectal method is used as outlined every principle of anoci-association as enunciated by Crile[1] will be fulfilled, and the patient awakes quietly, without nausea, vomiting, or pain, the analgesia continuing for some time after consciousness is restored.

New York.

DEVELOPMENT OF THE PHARYNX BY MUSCULAR EXERCISES AFTER OPERATION FOR ADENOIDS,

WITH SPECIAL REFERENCE TO FEEBLE-MINDED CHILDREN.

BY FRANCIS WARNER, M.D. LOND., F.R.C.P. LOND., F.R.C.S. ENG.,

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IN children with adenoids and naso-pharyngeal obstruction, when a digital examination is made the pharynx is usually found to be small, and this interferes with respiration, deglutition, and good speech; this condition is specially frequent in the small-headed children so commonly seen among the feeble-minded. During the last two or three years I have used exercises of the pterygoid muscles for the purpose of developing the bony boundaries of the pharynx with favourable results; the strength of the jaw movements has certainly become stronger; in each case deglutition and speech have somewhat improved, and I think it likely there has been growth of the sphenoid bone with widening of the space between the pterygoid plates which form the lateral boundaries of the upper pharynx; but I know of no accurate gauge of the size of this space other than the finger.

When the finger is passed above the palate in examination for adenoids the pharynx is often found to be small. This space is bounded behind by the basilar process of the occipital bone, with the body of the sphenoid, and laterally by the internal plates of the pterygoid processes and the hamular processes; the dimensions of this space increase with growth of the sphenoid as a whole. The muscles arising from these pterygoid bones are of considerable strength, and are inserted into the lower jaw, producing by their action lateral movements of the chin and protrusion and retraction of the lower jaw; their action (when in tension) affords a stimulus to the growth both of the sphenoid and inferior maxilla. The sphenoid in

[1] THE LANCET, July 5th, 1913, p. 7

the normal continues to grow till about the tenth year.

When the adenoid growths have been removed and the respiratory passages are clear, after convalescence useful exercises may be taught by a teacher, under the medical man's directions, to work the pterygoid and other jaw muscles. The chin should be held firmly by the teacher's fingers to prevent its movement and produce muscular tension, while the teeth are slightly separated; the pupil is then told to try to press his chin to the right, then to the left, when the effect of muscular action is indicated by the pressure produced. The jaw may next be pressed forward, as in protruding the teeth, then retracted. These exercises may be followed by downward pressure of the jaw against the teacher's hand, and clinching the teeth or biting on a piece of indiarubber, till the temporal and masseter muscles are felt to harden. Such exercises may be repeated half a dozen times. If action of the facial muscles is avoided with these exercises, and the chin is held firmly, I have not found that they cause grimaces or tooth grinding.

After the exercises have been taught by the teacher for a sufficient time it is usually better to hand over the work to the drill instructor; as the muscular power of the jaw movements grows stronger a corresponding strength of hand is needed in holding the chin firmly so as to insure pressure without movement of the jaw. Such exercises in many cases may be continued for a year or two. It is often useful to have these exercises along with other gymnastic teaching so as to obtain the pupil's best energy. The principal means at our disposal for stimulating the growth of a bone is by exercising the muscles attached thereto. I do not know of any more feasible plan of encouraging growth of the sphenoid and the development of a wider pharynx than the exercises described.

After adenoid operation it is desirable to train the child to breathe through the nose with the lips closed, but breathing exercises are also needed, especially for the feeble-minded. The child must be made to perform each of the movements of inspiration separately as well as to "breathe deeply." Here again I like daily exercises by the teacher as well as in the gymnasium. Movements of the chest should be made in three directions. With hands placed vertically on the front of the chest the teacher may tell the pupil to lift them up, feeling at the same time that the ribs are raised, and not be satisfied with a little hardening of the pectoral muscles. Then placing her hands so as to grasp the sides of the chest direct that they shall be moved outwards, causing lateral expansion. Lastly, getting the special uplifting of the first two ribs which can be felt under the collar bones, and move more freely than the lower ones. The diaphragm seems to be very little used by many feeble-minded children: to exercise this muscle let the pupil stand straight against a wall, and with a hand placed flat over the abdomen be told to press it forward in breathing. Excellent breathing exercises have been described by many writers, but the movements given are useful with all defective children.

The post-adenoid operation cases I have had to treat were mostly children, more or less feeble-minded, who require a great deal of training of the whole nerve-muscular system before good action is obtainable in hard muscular work. Organised lessons must be given daily in making coördinated movements, such as moving the eyes to look at what is shown, and in imitation at sight of teacher's hand and finger exercises made slowly and with precision as well as when told to perform them. Imitation of lip movements may be taught later. The "movement" must be learnt and practised before the action produces much muscle tension. This may be illustrated by exercises employed to strengthen the weak finger power so common in the defective child from want of development of the intrinsic muscles of the hand—viz., the interossei, lumbricals, and the thenar and hypothenar groups. First use exercises to control the movement produced by these muscles, later bring them into tension by making passive resistance to the finger movement with elastic bands, the use of weights, &c., which causes the muscles to harden. All this is useful mental training, producing coördination, good movements in response, and growth.

Small-headed children are often short, slightly built, and much under weight, consequently there is a less amount of physical work done when they move their limbs and walk than with others of normal growth. I usually begin muscular training by making the child lift weights in the hand, substituting ½-lb. wooden bricks for toy ones; let him carry books, bags of stones, &c., and in other ways produce muscular exercise as well as coördinated movements; thus we increase energy and voluntary power—it is often surprising to see how much hard work these children can do. Such muscular training continued systematically for two or three years affords the best stimulus I know of in promoting growth of brain and skull; in some cases the head circumference has grown from 18¾ inches at six years to 20 inches at nine years with corresponding growth of the pharynx and marked development of brain power.

London Hospital.

ON A FATAL CASE OF PELLAGRA IN AN INSANE PATIENT.

BY F. E. RAINSFORD, M.D. DUB.,

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THE case which I am about to report is interesting, inasmuch as it is, I think, the first recorded case of this disease in Ireland. Attention has recently been directed to the occurrence of cases of this disease in asylums in England, and it is owing to the information afforded by these reports that I was enabled to recognise the case in question.

The patient, a widow, aged about 70 years, was admitted to the Stewart Institution on July 3rd, 1913. The history given was that she had led rather a hard life, having been deserted by her husband early in her married life when in good circumstances, and had to bring up a young family with very limited means. She first broke down mentally in August, 1912, and was sent to a private asylum in September of that year, where she remained till May, 1913. She was then taken to her daughter's house, but there got very restless and excited and was inclined to wander. She developed delusions mainly of danger affecting her relatives, and finally got so bad that she was put under my care. On admission she was noted to be a woman of frail physique and worn aspect, and looking older than her years. Her bodily organs were healthy and she took nourishment well. Her mental condition was generally one of confusion

and dementia. She talked vaguely of the Germans and of the German Emperor, whom she thought was coming over to see her; of a green purse that had gone to heaven, and so forth. She settled down quietly for some days and seemed to improve, but on July 8th she got very restless and talked vaguely of lions, bears, and tigers, which frightened her. The next day she was much distressed, saying that a great gunpowder explosion had occurred near and she feared it had damaged her house and children; that the Germans had landed and that wagons of ammunition and cannons had gone along the road. Later she thought the house was going on fire and she tried to get out of the window. She was given trional, 20 gr. at bedtime, on one occasion and soon quieted down, and is noted on August 2nd to be much quieter and to be eating and sleeping well.

In or about the middle of August my attention was drawn to an erythematous rash of a crescentic shape situated in the middle of the forehead extending from the roots of the hair downwards, about 1½ inches in breadth at its widest part. It exactly resembled an acute sunburn, but the limited area affected negatived that in my mind. I confess I gave it little attention beyond directing the application of an emollient ointment. In a few days the hands became acutely inflamed, red and swollen, the inflammatory process involving all the backs of the hands and the wrists. They soon began to desquamate and got hard and scaly. The portion of the forehead first affected soon healed up, the healing process being accompanied by slight branny desquamation, the surface being coarse, harsh, and dry. Some small patches of inflammation were noticed in the angle of either eye and just below the margin of the lower eyelids. These latter patches never desquamated to any extent. On August 26th vomiting and diarrhœa were reported, which continued till the 30th, when treatment succeeded in checking both these symptoms.

Notwithstanding, the patient got rapidly worse, and on Sept. 2nd I note that she is "drowsy and dull, disinclined to eat, swallows with difficulty, and is in a semi-stuporose condition from which it is difficult to arouse her." On the 3rd muscular twitchings were noted and a tendency to stertor, so that I feared she would get an attack of cerebral hæmorrhage. The knee-jerks were absent and there was a general languor and prostration out of all proportion to the symptoms. Up to this I had not recognised the true nature of her affection, but an article which appeared in THE LANCET of Sept. 6th made it clear to me that I had to deal with a case of pellagra. I then asked Professor Walter Smith—our consulting physician—to see the case, and he agreed with me in regarding it as a case of pellagra. Dr. T. G. Moorhead, who also saw the case, concurred in the diagnosis. The patient rapidly got worse and died on Sept. 11th.

Just before her death my assistant, Dr. Kenneth Drury, kindly took some photographs to show the condition of her hands, but owing to the patient's very weak state and the deficient light in the room they are not very instructive. The condition of the hand just before death may be described as follows: colour purplish-brown, continuously affected on the extensor aspects, there being no patches of healthy skin; ends of fingers from roots of nails not affected (this is also noted in Dr. Cole's case). The skin feels rough and scaly, and there are patches of pigmentation, most marked on the wrists, deeper towards the carpal bones, and fading off as it extends towards the arm. The patch on the forehead, which had almost healed up before death, showed but little pigmentation, but there were isolated patches of dried-up secretion of a deep amber colour. There was never any œdema, and as far as could be ascertained the condition was painless.

It is abundantly clear that if we are to regard this as a case of pellagra we shall have to modify or completely re-arrange all the old teaching as to this disease. Dr. G. S. Blandy, of Napsbury Asylum, in THE LANCET of Sept. 6th, describes 11 cases of this condition, and Dr. J. W. E. Cole in the same issue describes a case in Bethnal House Asylum. In THE LANCET of Oct. 18th Dr. Emma M. Johnstone records three cases in the Holloway Sanatorium. All the cases recorded occurred in females, and in most instances their general health was poor. Most of them occurred in a year in which the heat was abnormal, though in most cases those affected were not exposed to the sun's rays. It is further interesting to note that all the cases so far recorded in England occurred in the insane. None of those affected seemed to have had maize as an article of diet. Dr. L. W. Sambon, who is investigating the disease, will doubtless in time be able to shed some light on this point, but so far the causation remains obscure.

THE USE OF VACCINES GRADUATED BY THEIR OPACITY.

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For several years in the ordinary medical practice of the Perth District Asylum I have been in the habit of preparing the necessary vaccines for the treatment of certain bacterial diseases and of graduating them by the method of counting the organisms. The results were satisfactory, but the labour was considerable. Latterly I have graduated the vaccines by their opacity; the results of treatment have been equally satisfactory, and the labour has been reduced to a minimum.

My method is to grow the cultures on agar, blood agar, &c., and to make an emulsion of the growth with normal saline. The emulsion is then placed in a 5/8th in. test-tube and diluted with normal saline until is is possible to read clearly certain type through the medium of the tube containing the emulsion. The type I employ as a meter is the ordinary type of Muir and Ritchie's Handbook. The vaccine is then sterilised by heat or it is sterilised by chloroform or by ether. Satisfactory results were obtained by all three methods of sterilisation. If the vaccine is to be used by myself I use it in the above density, making the initial dose in every case 0·1 c.c. If the vaccine is to be used by a general practitioner I dilute the original emulsion to 2½ or 5 volumes, and the dose will then be either 0·25 or 0·5 c.c. Subsequent doses can be increased or diminished according to the reaction obtained from the first injection.

In giving the injections in nervous patients I have found it useful to spray the skin at the point of the intended puncture with ethyl chloride. It is unnecessary to freeze the skin; the intense cold produced by a few seconds' application of the anæsthetic is sufficient to deaden completely the pain of the puncture.

I append a list of the results in 88 cases treated

by vaccines graduated in the manner above described.

Cases.	Disease.	Infection.	Remarks.
1 to 30	Boils, recurrent and multiple.	Staphylococcus aureus.	26 cases after two injections had no recurrences. Two relapsed, but after two more injections recovered. Two improved, but had frequent recurrences of boils; immunity induced by further injections of temporary nature.
31	Carbuncle of neck.	"	No benefit from vaccine. The patient died from septicæmia.
32	Carbuncle of back.	"	Marked improvement after one injection.
33 to 37	Impetigo contagiosa.	"	Four cases free after two injections; 1 relapsed, but on reinjection recovered. Fifth case showed only temporary improvement to repeated injections.
38	Eczema of back of both hands.	Streptococcus.	For 3 years attacks recurred in spring and autumn. Two injections removed the condition; no recurrence for 3 years.
39 to 41	Malignant endocarditis.	"	No improvement as the result of injections.
42	Chronic bronchitis.	Micrococcus catarrhalis.	Improvement, but not recovery after two injections.
43 to 50	Acute nasal catarrh.	"	Marked relief and an average of 3 months' immunity after from one to three injections.
51 to 52	"	Pneumococcus.	Marked relief in both after one injection.
53	Chronic nasal catarrh of several years' standing.	Mixed, micrococcus catarrhalis and bacillus prodigiosus.	No benefit after repeated injections.
54	Chronic nasal catarrh, two years, complicated by asthma.	Mixed, micrococcus catarrhalis and bacillus septicus.	No benefit after repeated injections.
56 to 67	Chronic nasal catarrhs, one year and one month.	Micrococcus catarrhalis.	Relief and recovery after from two to three injections in 10. No temporary or permanent benefit in the remaining 2 cases.
68 to 70	Cystitis.	Streptococcus.	Recovery after two injections.
71 to 75	"	Bacillus coli.	Recovery after from three to five injections.
76	Cystitis with symptoms of pyelitis.	"	After one injection temperature fell from 103° to 101° F. Recovery after two further injections.
77 to 79	Conjunctivitis with blepharitis (chronic).	Staphylococcus aureus.	Relief after two injections, lids remaining red and thickened.
80	Conjunctivitis, recurrent.	Bacillus (?)	One injection relieved symptoms; after two injections inflammation disappeared and no recurrence.
81	Chronic sinus of knee-joint after tuberculous disease.	Staphylococcus aureus.	The sinus healed after two injections.
82 to 85	Chronic sinuses, suppurating glands of neck.	"	In 2 sinuses healed after one injection; 2 healed but broke down, requiring surgical treatment.
86	Chronic otitis media with frequently recurring abscesses.	Bacillus (?)	Marked relief after two injections. Patient passed out of my care.
87	Chronic sinus after removal of mastoid.	Staphylococcus aureus.	After six injections sinus healed; has remained so over a year.
88	Chronic ulcer of hand, the result of post-mortem infection.	Streptococcus.	Two injections removed a condition which lasted 3 months, resisting all local treatment.

Murthly.

LATIN-AMERICAN MEDICAL CONGRESS.—This Congress, held in Lima in November, was attended by a large number of eminent members of the profession, representing Argentina, Brazil, Chili, Paraguay, Uruguay, and of course Peru, and was a very successful meeting. The members were publicly entertained by the President of the Peruvian Republic, Mr. Billinghurst, and many papers of great public interest were read and discussed, amongst others one by Dr. Barboza, a Brazilian delegate, on the extensive sanitary measures which have been carried out in Rio de Janeiro.

CANCER OF THE TONGUE AND LARYNX REMOVED BY OPERATION.

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THE desirability or otherwise of performing extensive and mutilating operations for cancer of the tongue and larynx is a question which invariably taxes the judgment of those who are called upon to treat the condition, and it constitutes my reason for publishing the following case.

The patient, a man, aged 45, had suffered from painful deglutition, pain in the ears, hoarseness, and rapid loss of weight and strength for about three months. His mouth and throat were very intolerant of examination either by the indirect or direct method, but the epiglottis could be seen as a fungating, ulcerating mass, with a broad, ulcerated base involving the root of the tongue and the superior aperture of the larynx. A small portion removed by punch forceps was pronounced to be definitely epitheliomatous. No enlarged glands could be palpated in the neck. The condition, together with the reasons for and against operation, were explained to the patient, and he decided for operation.

The mouth and teeth were carefully cleansed for several days before the operation, which was performed on Sept. 8th, 1913. A tracheotomy through the tied and divided thyroid isthmus was first performed and a Hahn's tube introduced. Both external carotids with their superior thyroid and lingual branches were ligatured through the usual incisions. The attachments of the tongue to the floor of the mouth were then divided by scissors down to the hyoid bone, which was divided in the middle line and the halves widely separated. The front and sides of the larynx and thyro-hyoid membrane had been previously cleared, the incision being carried up above the hyoid into the floor of the mouth. The tongue was brought out through this incision, and the consequent free exposure of the superior aperture of the larynx showed an infiltrating growth especially affecting the right side of the larynx. The cords were healthy. The mucous membrane of the pharynx was divided transversely at the upper border of the cricoid and the tongue and larynx above the cricoid were removed in one mass. The cricoid was left in position, as it made an admirable opening for stitching to the skin of the neck. The hæmorrhage during the operation was practically *nil*. The mucous membrane on the posterior surface of the cricoid was freed and stitched up to the remains of the structures in the floor of the mouth. An œsophageal tube was passed and left *in situ*. The wound in the neck was left open, the tracheotomy tube being removed.

The patient did well for a few days, taking his food through the tube and getting a fair amount of sleep. Unfortunately, the mouth became septic and subsequently infected the neck wound. Septic pneumonia supervened, and the patient died on the tenth day after operation. The œsophageal tube was retained to the end and caused little or no inconvenience.

Complete removal of the teeth before operation would probably have lessened the chances of sepsis, and I would certainly adopt this course in any future case. The operation, I think, was justifiable for the relief experienced by the patient at getting rid of a loathsome, painful, ulcerating mass, if for

no other reason. The condition of such patients, even should the operation prove successful, is certainly far from enviable, but, in the absence of power to provide an euthanasia, it is preferable to their pitiful plight if nothing is done.

The absence of hæmorrhage by means of ligature of the external carotids and their branches makes the operation a comparatively easy one. The complete cutting off of the blood-supply, however, favours the supervention of sepsis, and probably a less heroic method of obtaining a dry operation field, such as by a temporary ligature, might be more desirable.

Possibly the retention of the cricoid cartilage was a mistake, as it left the tracheal opening high up in the neck and favoured the entrance of septic discharges. Dr. Dan McKenzie's plan of closing the cut end of the trachea by sutures and leaving the tracheotomy tube *in situ* for some days would undoubtedly have been preferable, and had I had the good fortune to have seen, before operation, the description of his case of laryngectomy in the September number of the *Journal of Laryngology*, I should have adopted it.

Sheffield.

THE REPAIR OF THE FLEXOR TENDONS OF THE HAND: A REVISED TECHNIQUE.

BY C. MAX PAGE, M.S. LOND., F.R.C.S. ENG.,

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ACCIDENTAL division of one or more of the flexor tendons of the hand is a not uncommon occurrence. Spontaneous healing is rare—in fact, it may be taken as a rule that after complete division surgical interference is necessary if a satisfactory result is to be obtained. In my opinion the average final results of such procedures are not as good as might be wished for. I base this statement on the experience of some 20 cases which have come under my treatment, and on the observations on a much larger number which I have seen in the casualty department of St. Thomas's Hospital. Primary union is by no means the rule. Even if satisfactory healing of the cut surfaces of the tendon results free movement is frequently hindered by adhesions of the scar; and the extensive division of the theca, which is often necessary in order to bring to the surface the proximal divided end, subsequently interferes with the proper transmission of power. After such treatment the tendon springs forward when it comes into action, as its bearing surface is only a layer of fibrous tissue lying just below the skin, instead of being the firm synovial lined theca. The worst results are, I think, seen in the case of the thumb. This is particularly unfortunate for the patient, as a full control of the single flexor tendon of this digit is of the utmost importance in any action of the hand.

The factors which are concerned in the production of unsatisfactory results may be grouped under two general heads—viz., (1) Failure of primary union between the cut ends of the tendon; and (2) incomplete restoration of function in spite of union of the tendon.

1. The failure of union may be due to—(*a*) *Inadequate fixation of the divided ends*—in children especially the frailty of the tendon often renders satisfactory suture by the usual methods very difficult. (*b*) *Infection of the wound*—if any degree of suppuration take place the suturing will almost certainly give way. (*c*) *Too early mobilisation of the injured part*—firm union between the divided ends of tendon in normal cases, according to Betzow,[1] is complete in 60 days, though some post-mortem examinations of Adams[2] prove that fairly firm union is present in about 20 days. Seggel[3] states that complete conversion into tendinous tissue does not take place under 90 days. (*d*) *Undue injury of the theca.* If the latter is extensively laid open to expose the tendon, as may be necessary in cases of late suture, resuture of it will be found impossible. The tendon springs forward, and, instead of being surrounded by synovial sheath, is mainly in contact with the subcutaneous tissues. Such a state of affairs greatly hinders proper repair, for union of the divided ends of a tendon is assisted by the activity of the inner layer of the theca.[4]

2. *Incomplete restoration of function.*—In a certain number of cases, though union of the divided ends has occurred, the action of the tendon is weak or imperfect. Sometimes this is due to the formation of adhesions between the tendon and surrounding structures, and if this is the cause mobilisation under gas and subsequent exercises may effect a cure. If, however, the theca was divided in its long axis to any extent at the operation, the weakness may be a permanent one, due to the forward displacement of the tendon when it comes into action. No doubt irregularities in the surface of the tendon and in the new-formed theca, which at first limit movement, in course of time become smoothed out.

A *résumé* of some of the anatomical points in the region is desirable before describing the technique which I advocate.

The Tendons of the Fingers.

The two flexor tendons of each finger are enclosed in a firm fibrous tissue sheath, the theca, lined by vascular synovial membrane. The theca extends from the head of the metacarpal bones to the base of the terminal phalanx; it is attached marginally to the edges of the phalanges and the lateral part of the glenoid ligaments of the interphalangeal joints. The theca is particularly strong opposite the shaft of each phalanx and thin over the articulations. The sublimis tendon, lying most anterior, divides about the middle of the proximal phalanx, embraces the profundus tendon, and unites again behind it at a level of the proximal joint, and is inserted into the middle of the anterior surface of the middle phalanx. Both tendons are covered by the thin peritenonium, which is continuous with the synovial lining of the theca at the points of insertion of the tendon, and is also connected with it by the delicate vincula accessoria. Of these vincula there are two types, brevia and longa. The arrangement of these vincula is illustrated in the diagram. (Fig. 1.) The two long thin ones have some control of the retraction of the tendons when the latter are divided distal to the vincula. The vinculum longum of the profundus tendon is absent in about 1 case in 10; it passes at the level of the proximal

[1] Betzow: Entwickelung und Regeneration der Sehnen, Archiv für Mikroscopische Anatomie, 22, 1883.

[2] Adams: On the Reparative Process in Human Tendon after Subcutaneous Division, Proceedings of the Royal Medical and Chirurgical Society, London, 1860.

[3] Seggel: Histologische Untersuchungen über die Heilung in Sehnenwunden und Sehnendefekten, Beiträge zur Klinischen Chirurgie, 37, 1903.

[4] Marchand: Der Process der Wundheilung, Deutsche Chirurgie, Lieferung 16, 1901; and Busse: Zeitschrift für Chirurgie, 33, 1892.

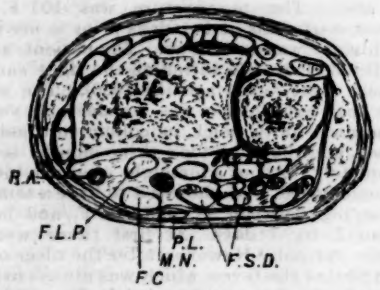
interphalangeal joint from the ventral surface of the profundus tendon between the split sublimis tendon, being attached to the latter and passing on to the theca. Two paired vincula longa usually pass from the sublimis tendon, just after it has divided, to pass direct to the sides of the theca. In the palm the two flexors for each finger lie superimposed, the sublimis being superficial; they are

FIG. 1.

Sketch showing typical arrangement of the vincula accessoria to the two flexor tendons.

covered by the palmar fascia. The digital vessels and nerves lie laterally in the spaces between the tendons. The tendons are nearest the surface just proximal to the head of the metacarpal bones, subcutaneous tissue and the thin expansion of the palmar fascia here alone covering them. The superficial palmar arch crosses them at a level corresponding with the middle of the metacarpal bones.

FIG. 2.



Section taken just above the wrist-joint showing the position of the flexor longus pollicis tendon. R.A., Radial artery. F.L.P., Flexor longus pollicis. F.C., Flexor carpi radialis. M.N., Median nerve. P.L., Palmaris longus. F.S.D., Flexor sublimis digitorum.

The Tendon of the Thumb.

In the thumb the conditions are markedly different. The single flexor tendon is contained in a thecal sheath similar to that seen in the fingers; the tendon is inserted into the anterior surface of the base of the terminal phalanx. It usually has only one vinculum accessorium attached close to its insertion; another long slender one may be present opposite the proximal phalanx. In the thenar eminence the tendon passes in a canal very completely covered by the outer group of thenar muscles. The tendon passes beneath the annular ligament and to its outer side; opposite the wrist-joint the tendon lies in its own thecal sheath just posterior and slightly to the ulnar side of the tendon of the flexor carpi radialis. In this situation it can always be readily found. (Fig. 2.) From the above considerations it will be seen that in the fingers, if the profundus tendon be divided distal to the proximal interphalangeal joint the muscular end will be prevented from retracting any considerable distance by the vinculum accessorium. If division takes place proximal to this level both tendons may retract well into the palm, though the attachment of the lumbrical muscles to the profundus tendons will tend to limit such a movement. In the thumb if the tendon is divided anywhere proximal to its insertion it can retract very freely, since it has at most a slender vinculum to hold it.

General Principles of Treatment.

Taking into consideration the above points, I advocate the following technique with a view to improving the results of operation in this class of case. For the sake of clearness a somewhat dogmatic catalogue of principles may be allowed.

When to operate.—If the wound is an incised one and apparently clean operation should be undertaken within 12 hours of the injury. If the case is seen later the wound should be painted with tincture of iodine and a simple dressing be applied; if on inspection two days later there is no evidence of infection operation may be proceeded with. If the incised wound is suppurating it should be treated on simple lines, the operation being postponed until the skin be soundly healed. In lacerated wounds, seen soon after the injury, whether immediate suture of tendon is undertaken or not, must depend on the degree of injury of the part and the extent to which infective material appears to have been introduced. In any case it will be better to appose the margins of the tear as far as possible and wait till the wound has healed before dealing with the tendons. In cases seen late and when the skin wound has healed completely, operation should be undertaken if there is no sign of union in the tendon two or three weeks after the injury.

Cleansing the wound.—When the wound is an open one any foreign matter should be removed with forceps; the whole surface and the surrounding skin is then freely sponged with tincture of iodine. No preliminary washing with water should be allowed.

Recovery of the cut ends of the tendon.—The distal end can always be readily caught without disturbing the theca, flexion of the terminal phalanx being sufficient to bring it into the wound. In regard to the proximal end, the degree of retraction varies much and is greater in late than in recent cases, but in whatever situation the tendon may lie a rule should be made never to incise the theca beyond the extent of the primary injury. The cut end of the proximal tendon should be sought for with sinus forceps introduced into the theca through the primary opening; the tendon is made to descend as far as possible towards the wound by flexing the wrist-joint and massaging the forearm muscles. If by these means the tendon cannot be caught, it must be picked up through another incision made higher up in the manner described below. To carry out this procedure a flexible bullet probe with an eyehole cut in the bulbous end is required. In the fingers an incision half an inch in length is made directly over the line of the tendon at a level with the neck of the metacarpal bone; after division of skin, subcutaneous tissue, and the thin expansion of the palmar fascia the sublimis tendon (lying close over the profundus) will be found very near the surface. The theca (in this situation, frail and thin) is opened and the divided tendon or tendons are drawn out through the wound; the bulbous end of the probe is then passed from the primary wound through the theca and made to emerge at the secondary opening. A suture is fixed to the cut tendon and threaded through the eye of the probe. The probe is then drawn back and out again at the primary incision bringing the tendon with it.

In the case of the *thumb* a similar procedure is carried out, but the tendon must be picked

up on the proximal side of the wrist-joint. A three-quarter inch incision is made extending upwards from the level of the wrist-joint directly over the ulnar border of the flexor carpi radialis tendon; this tendon is pulled to the radial side, the median nerve is gently displaced ulnarwards, and the tendon of flexor longus pollicis will be seen lying deep and between these two structures (Fig. 2). The tendon will be lying slack, and on this account may appear a little like the median nerve. The theca is incised and the tendon pulled out. Sometimes it may not slip out quite readily; this is usually due to a failure to open the theca, which is thin and not very obvious in this situation. The probe is then passed and the cut tendon drawn back into the primary wound as described above.

Fixation of the cut ends of the tendon.—Any one of the advocated methods for suturing the cut ends may be employed; it should, however, be remembered that adaptation of the cut ends without causing any abnormal deviations is more important than close apposition of the cut surfaces. In some cases, especially in children, it is difficult to get a good hold of the tendon with the suture. In such cases the best plan I think is to hold the cut ends of the tendon successively, at their proper level in the theca; then pass a suture from side to side of the theca piercing the tendon about a quarter of an inch from the point of section; tie the suture with sufficient firmness to hold the tendon in position. Simple iodised catgut should be used for this procedure. Though absolute apposition of the cut surfaces is not obtained by this means, the ends of the tendon lie in their normal relationship and quite close enough for satisfactory healing to take place. I have only tried this procedure once in man, and then with a good result. Some experiments I have recently made on rabbits show excellent early union after suture by this method. No further deep suture should be inserted and the skin wound is closed.

After treatment.—Position. At the completion of the operation I put the digit up flexed on a pad. This position should certainly be adopted if the fixation of the cut ends is of doubtful firmness; it also has the merit of apposing as far as possible the cut edges of the theca, which in practice cannot readily be sewn together. Further, any active movement of the flexor tendon will strain the tendon but little when the finger is in this position.

Mobilisation.—Most authorities agree in concluding that union between the divided ends of tendons under average conditions is in no sense complete until about 60 days from the time of section.[5] After tenotomy of the tendo Achillis it is customary to wait 6 to 12 weeks before permitting full use of the limb. Taking the points into consideration, I think the best results are to be obtained if the finger is left flexed for at least a month after the operation. Massage without movement may be allowed after 10 days, but in young people if the use of the other fingers is encouraged as far as possible the general circulation of the hand will remain good. Complete mobilisation under gas should be carried out about eight weeks after the operation, and up to that time no very vigorous use of the finger should be allowed. If necessary, exercises on a pendulum machine can subsequently be given to complete the restoration of the full function of the parts.

Welbeck-street, W.

[5] Ibid.

A CASE OF RAT-BITE FEVER TREATED WITH NEOSALVARSAN.

BY N. F. SURVEYOR, M.A., M.D. BOMBAY, M.R.C.P. LOND., D.P.H. CAMB.,

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RAT-BITE fever is a term applied to cases following the bite of a rat. Still, one cannot say that the term connotes an entity, simply because the number of observations on this disease are not many. However, the description of the cases published seems to favour the assumption, yet one must bear in mind the possibility that the infecting organism may be different in some of the cases that one sees.

Recently I have had the opportunity of studying a case of this disease through the courtesy of Dr. C. Fernandes, of Bombay, under whose care the patient had come for about three months prior to my seeing her on April 11th, 1913. At this time the patient was suffering from one of the periodic attacks of the fever. She was very anæmic; the face was puffy and pasty in appearance, and on the forehead and cheeks there were reddish wheals; the ears, especially the right one, were red and œdematous; similar wheals were present on the trunk also. The temperature was 103° F., and fever had started about two days prior to my visit.

The history was as follows. The patient, a high-class Hindoo lady, was bitten on the right ear by a rat about eight years ago (in 1906). The wound did not heal, but the ear was considerably swollen and appeared quite black in colour; ultimately it ulcerated, and the ulcer took three months to heal up completely. About a fortnight after the bite the fever commenced, and she used to have a temperature varying between 99° and 105° F., and lasting for from 3 to 7 days. At first there were no eruptions noticed. However, after the ulcer on the ear had healed the fever, which was always ushered in with rigors, was accompanied by large roseolar wheals on different parts of the body, especially the face. The mucous membrane of the mouth and the fauces was also swollen and red. The attacks persisted for all these years in spite of ordinary treatment with quinine, arsenic, iron, and mercury. The patient was left weaker after each attack, and as these came on generally once or twice every month the loss of flesh and anæmia were excessive. When seen first the general appearance of the patient suggested Bright's disease, as the face was puffy and there was some œdema of the extremities. Anæmia was very marked. The roseolar wheals were the most characteristic feature of the fever.

The finger blood, about 1 c.c., was twice examined by cultural tests, but no microbes could be detected. The blood was very watery and almost poured out of the puncture. No malarial parasites could be detected. The leucocyte count was: polymorphonuclears, 89 per cent.; eosinophiles, 0 per cent.; round hyalines, 1 per cent.; and lymphocytes, 10 per cent. Leucocytosis was apparently present. The liver and spleen were not enlarged. The lymphatic glands, chiefly of the neck, were enlarged during the pyrexial periods and disappeared afterwards.

On account of the periodicity of the fever and the peculiar eruption it was thought that perhaps the infecting organism might be allied to spirochætæ, and some of the patient's serum was injected into the scrotum of two rabbits with

a view to obtaining a culture, but with negative results. One rabbit showed a rise of temperature for a couple of days about one week after the injection. The Wassermann test was also applied with rat and guinea-pig heart antigens. The serum was inactivated before testing by Fleming's method, and the complement was supplied by the addition of a known non-syphilitic serum, which was also used as a control test. The result was a negative reaction. However, next day the serum, without inactivation, was tested according to original Fleming's method, and a positive result was obtained with both antigens. These contradictory results seem to show that perhaps the control's serum was rich in complement and the small amount of immune body in the patient's blood had not completely used it up. That the quantity of complement in the serum is not a fixed amount is quite possible, because in some cases of marked syphilitic eruptions the Wassermann test as modified by Fleming has been found negative, and in such cases inactivating the serum and adding the complement from a known non-syphilitic has given a positive result. In such a case it is quite possible that the syphilitic serum must have been very rich in complement. I have actually come across such a case. The urine was found to contain albumin, a few leucocytes, granular casts, and red blood corpuscles. The last were present even during apyrexial periods, but they were much increased with the onset of fever. This seems to show that along with the roseolar state of the skin the kidneys were also similarly affected. There were always marked lumbar pains during the attacks. The menstrual flow had stopped for about two years previously.

As the patient's condition was getting worse it was decided to try an intramuscular injection of neosalvarsan. On April 16th 0·7 grm. of the drug was injected, the temperature being 99°. For about a week the temperature kept varying between 99° and 102°, and there was severe pain at the site of the injection, which was moderately swollen. However, after that the temperature came down to normal and remained so for a fortnight; then it went up to 100° only for a couple of days. There was very little roseolar eruption seen at this time. After another month a little rise occurred, but since then the fever has disappeared, and the patient has been putting on weight and getting stronger daily. The urine still contains traces of albumin, but since Sept. 7th last the red corpuscles have completely disappeared. No casts are now present.

About the time of the injection the patient's weight was 94 lb., and in September it was 118 lb., while on Nov. 11th it was 123 lb. Some two months after the injection the patient was put on metharsinate of sodium by the mouth, as she refused to have injections of any drug, and the improvement in the general condition has been steady.

Since the injection of neosalvarsan in this case I have come across the statement[1] that Hata has collected eight cases of rat-bite fever treated satisfactorily with salvarsan. This seems to favour the belief that the organism is probably a protozoon, as suggested by T. J. Horder in his paper on Rat-bite Fever.[2]

About 12 years ago I had seen a Hindoo lad with the same fever. He, too, had roseolar eruption accompanying the temperature, and salol dissolved in olive oil was found to relieve itching and burning sensation. The temperature used to go up gradually to 105° or 106° F. His blood did not show any organisms at the time, and failed to give any culture. He made a complete recovery under a prolonged course of methylene blue, quinine, arsenic, and mercury, though what part the drugs played in the actual cure could not be ascertained. He has grown enormously stout now, probably due to the prolonged treatment with the drugs mentioned, especially arsenic, as there is no tendency to obesity in the family.

In conclusion, it may be stated that the rash very much resembles that in malarial fevers; however, the examination of the blood settles the point. Again, quinine rash may be easily kept under check by administration of calcium lactate, which was found of no avail in the treatment of the case of the Hindoo lady.

Bombay.

[1] The Medical Annual, 1913, p. 38.
[2] Quarterly Journal of Medicine, vol. iii., No. 13, January, 1910.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SURGICAL SECTION.

Brachial Arterio-venous Aneurysm treated by Vascular Suture.—Ruptured Intestine.—Endothelioma of the Breast.

A MEETING of this section was held on Dec. 9th, Mr. G. H. MAKINS, the President, being in the chair.

Mr. GILBERT KEMPE read a paper on a case of Brachial Arterio-venous Aneurysm treated by Vascular Suture. It was that of a man, aged 56, who came up for examination of an injured wrist. He had an impacted fracture of the left radius in good position, but by X rays the hand held six large shots. Comment on these showed that they had been received about 25 years ago. The man's wife volunteered that there were so many in the other arm (the right) "that they rattled about like a bird singing." The sound, or sensation, had been noticed for about two years Inspection showed a large pulsating swelling in the arm just below the anterior axillary fold, and in the line of the brachial artery. It was increasing in size, but was not painful. The swelling was soft and compressible, and pulsated regularly. A thrill was easily felt, which was a continuous one, but which had a systolic increase of intensity. The swelling could be traced into the axilla, and a soft pulsating swelling was found beneath the right clavicle. Here a similar thrill could be felt, but it was less marked than in the arm. Pressure on the subclavian artery above the clavicle caused a collapse of both swellings and a cessation of the thrill. Release of the pressure caused the swellings to fill up slowly, but they required several pulsations to become as full as before. Pulsation in any of the superficial veins of the arm, forearm, or thorax could not be detected. The influence of respiration on the swellings was not noted. The right radial pulse was less full than, and in time rather behind, the left. A humming, low-pitched bruit with high-pitched systolic accentuations could be heard over the swelling. The systolic notes were conducted as far as the bend of the elbow. The complete bruit could be heard, but not so loudly, beneath the right clavicle. There was no evidence of intrathoracic aneurysm. The condition presented most of the points necessary for a diagnosis of brachial arterio-venous aneurysm. It was rapidly increasing in size, even while the man was in bed and under observation. It was decided to sever the communication and to restore the ordinary state of the circulation. A dissection showed a communication between the upper part of the brachial artery and the inner of the venæ comites. The communication was not direct, for a small but distinct bulb, of the size of a cranberry, intervened between the vessels. They were therefore dealing, speaking strictly, with a varicose aneurysm. The brachial and axillary arteries above the anastomosis were of the size of a common iliac artery, while below the

artery was of normal size but very tortuous. The median nerve and the other concomitant vein lay on the outer side of the artery. The enormously distended vein lay to the inner side of the anastomosis and was pouched below, forming a kind of cæcum. The ulnar nerve ran across this cæcum, depressing it and closely adherent to it. Dr. Thornton had admirably depicted the condition found. The parts were cleaned and the artery and vein were clamped separately above and below the anastomosis. Special clamps were not available and Durham's hare-lip clamps were utilised. The little varicosity was divided transversely to its axis, and a little towards the venous side. The opening leading from the artery was then closed by (1) a continuous mattress suture, after the method of Dorrance, taking up all the coats of the artery. A round needle and 000 silk were used. This part of the procedure was difficult because the upper arterial clamp did not completely control the vessel, and small systolic spurts were coming through during the suturing. It was not possible that an anastomosing vessel entered between the clamps as the artery was fully cleaned. (2) By an outer row of continuous mattress suture taking up the outer and middle coats. Here the same sized needle and silk were used. The venous orifice was closed by an ordinary continuous suture of 00 catgut. When the clamps were removed both suture lines were found to be blood-tight and the wound was closed. In after-treatment, some morphia was given to relieve anxiety, and to reduce blood pressure, and of course the limb was kept at rest. Mr. Kempe had a note of the man's condition on the day after the operation. His general condition was excellent. His right hand was warm, of good colour, not œdematous, and the right radial pulse was fuller and, in point of time, equal to the left. The subclavicular swelling, thrill, and bruit were absent. His only complaint was of some pricking and tingling pain on the inner side of his hand. They thought this was due to the operative interference with his ulnar nerve. He was allowed up at the end of a fortnight, and then his pulse became rapid, weak, and irregular, and his heart enlarged. He seemed to have some cardiac dilatation. The right pulse became weaker than the left, but at no time was there any sign of embolism, nor did the hand become cold or œdematous. A few days in bed improved the heart condition, and he left the hospital apparently well. He came up to report himself a fortnight later, and said he was quite well but for the tingling pain on the inner side of his hand. His pulse was still rapid (96). The right radial pulse was appreciably weaker than the left. A sphygmomanometer gave a systolic pressure of 120 mm. in the right arm and of 140 mm. in the left. It seemed possible that laminated fibrin had been laid down over the arterial suture, either closing the artery completely or considerably throttling it.

Mr. V. Z. COPE read a paper on the Early Diagnosis and Treatment of Ruptured Intestine, which will be published in full in THE LANCET.

Mr. RAYMOND JOHNSON recounted statistics which he had been able to compile from the records of 12 London hospitals for the years 1908–1912 inclusive. There had been 44 cases of ruptured intestine in all; 35 had died and 9 recovered. After operation 9 had recovered and 21 died, whilst the remaining 14 died without operation. The sites of rupture were as follows: duodenum, 5; jejunum, 22; ileum, 13; small intestine (? site), 1; hepatic colon, 1; rectum, 1. The symptoms which occurred were abdominal pain, with or without tenderness in 21; abdominal rigidity in 16; vomiting in 14; marked shock in 13; increasing pulse-rate in 11; bruising of the abdominal wall in 9; dulness in one or both flanks in 9; diminution or loss of liver dulness in only 4. Irrigation was mentioned as having been performed in only one successful case, but in seven or eight of the unsuccessful cases.

Mr. H. BETHAM ROBINSON described a case of Endothelioma of the Breast which occurred in a single woman, aged 27, who came under his care in November, 1908. In the preceding August she had first noticed a lump in the right breast, which had gradually got larger without any pain or inconvenience. Examination showed two hard nodular masses just above the nipple, one in the outer and the other in the inner quadrant, both fairly well defined yet loosely connected with each other. The skin was quite free except over the outer part, and the gland was not fixed to the deep tissues. There were three hard discrete glands in the right axilla. The condition seemed to be carcinomatous, and the breast was freely removed and the axilla cleared. The growth on section was of a pinkish colour, granular-looking, and did not cup; it was rather sharply defined from the surrounding tissue, which appeared unduly fibrous. Histological examination showed that the most distinctive feature was the appearance of more or less rounded cell masses enclosed in a fibrous connective tissue framework especially dense at the margin to form a sort of capsule. The cells composing the masses were somewhat variable in shape, with deeply staining nuclei and plenty of cell protoplasm. In most of the masses were rounded or oval spaces with a sharply defined margin, and in many of these was to be found a fibrinous coagulum with some entangled leucocytes; round the spaces the cells tended to radiate in columns. None of the clefts were well-formed vessels, and in none of them were red blood discs to be seen. There had been no recurrence in a period of over five years. The tumour was considered to be an endothelioma starting in lymphatics. Attention was drawn to the apparent rarity of this form of breast tumour, but Mr. Robinson considered that many tumours difficult of interpretation, if more critically examined, would probably fall into this group. Its apparent low rate of malignancy was commented upon. Another tumour was referred to, and the specimen shown, which was removed from a lady in December, 1904; this up to date had also not recurred. It was much of the same type as the former, only histological investigation showed that it was a perivascular endothelioma (perithelioma).

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

Exhibition of Specimens.—Primary Cancer of Bartholin's Gland.—Pre-eclampsia.—Cæsarean Myomectomy.—Relation of Syphilis to the Uterus.—Fœtus Acardiacus Amorphus.

A MEETING of this section was held on Dec. 4th, Dr. W. S. A. GRIFFITH, the President, being in the chair.

The following specimens were shown:—

Mr. ALBAN DORAN: An Occluded Vagina after Total Hysterectomy.

Mr. J. D. MALCOLM: Sloughing Fibroid with Complete Inversion of the Uterus.

Mr. G. G. ALDERSON: Chrobak's Instrument for Embryotomy.

Mr. WILBERFORCE SMITH: Epidiascope Demonstration of Altmann's Granules in Tissues at Point of Invasion by Squamous Carcinoma of the Uterus.

Mr. S. GORDON LUKER: Hydatidiform Mole and Normal Ovum in Twin Pregnancy.

Dr. HERBERT SPENCER read notes of a case of Primary Carcinoma of Bartholin's gland which he had removed, with the superficial inguinal (carcinomatous) glands, on March 3rd, 1912, the patient being well and free from recurrence on Oct. 21st, 1913. A section through the growth and duct (which was unaffected) showed it to be an adeno-carcinoma with degeneration of the cells, causing it to resemble squamous carcinoma. The disease was very rare, half the cases occurring over 50 years of age. The two sides were affected with equal frequency. The relation of the disease to gonorrhœa and inflammation was discussed and a short clinical history of the disease was given.—Remarks were made by Dr. T. W. EDEN and Dr. H. RUSSELL ANDREWS.—The specimen was referred to the Pathology Committee of the section.

Dr. VICTOR BONNEY reported two cases. In the first, a primigravida, 24 weeks pregnant, was suddenly seized with symptoms of acute pregnancy toxæmia. The urine was diminished and contained albumin and blood. Jaundice and rapid loss of sight occurred. Immediate evacuation of the uterus was effected by performing abdominal Cæsarean section. The toxæmic symptoms disappeared within two days and the patient made a rapid recovery. The second case was that of a primigravida whose uterus was the seat of six large fibroids. Cæsarean section was performed at term and after delivery the tumours were enucleated. The largest was of the size of a melon and was submucous in position. This operation, which he termed Cæsarean myomectomy, should be the operation of choice in all pregnancies complicated by fibroids in which the uterus was uninfected, for pregnancy in a fibroid uterus proved the functional value of the organ.

Moreover, the retractile state of the musculature was peculiarly favourable for enucleation.—Remarks were made by Dr. H. WILLIAMSON, Dr. AMAND ROUTH, Dr. G. BLACKER, the PRESIDENT, Dr. R. D. MAXWELL, and Dr. EDEN.

Mr. H. BECKWITH WHITEHOUSE (Birmingham) in a paper on the Relation of Syphilis to the Uterus pointed out that the occurrence in the uterus of lesions the result of syphilitic infection had long been regarded as extremely rare, and very little had been written upon the subject. If it was true that the corpus uteri possessed a definite immunity to the ravages of the spirochæta pallida it was of considerable interest, especially as the relationship was so intimate in connexion with placental and fœtal syphilis. But he considered rather that syphilitic lesions of the uterus had been overlooked in the past. In 1912 he had suggested that the underlying pathological factor in some cases of chronic metritis and fibrosis uteri might be syphilis. He had since investigated by the Wassermann reaction 16 patients with a clinical diagnosis of this nature, seven of whom showed a well-marked positive reaction, although only one gave other evidence of direct syphilitic infection. In three it was necessary to remove the uterus on account of severe hæmorrhage. The uteri from these cases all showed well-marked fibrosis and peri- or endarteritis of the vessels. The pathological picture coincided with the appearances seen in interstitial myocarditis, orchitis, hepatic cirrhosis and other indurative conditions generally considered due to syphilis. Why, in the case of the uterus, therefore, was it necessary to call for other factors such as septic inflammation, repeated pregnancy, &c., to account for an exactly similar lesion, especially when the Wassermann test showed that a certain proportion of such patients were undoubtedly infected. He pointed out that some cases of pyometra unassociated with malignant disease appeared to bear a distinct relation to syphilis. Specimens from five cases of menstrual blood collected through an intra-uterine catheter during the secondary stage of syphilis showed in two cases the intracellular bodies described by McDonagh and Ross. The presence of such bodies in the menstrual discharge proved a possible source of infection to the uterine tissues through which they passed. The spirochæta pallida had not yet been demonstrated in the menstrual blood.—Remarks were made by the PRESIDENT, Dr. ROUTH, and Dr. BLACKER.

Dr. M. J. STEWART (Leeds) introduced a case of Fœtus Acardiacus Amorphus. He gave an account of a typical example of the fœtus acardiacus amorphus (with drawings and radiographs). The specimen consisted of a trunk-like mass without head or limbs, to the flattened ventral aspect of which the umbilical cord was attached. Radiographic examination showed a vertebral column of 18 segments, to the upper seven of which ribs were attached. Posteriorly the pelvis was represented by two bones on each side, but of limb bones there was not the slightest trace. Dissection and microscopic examination showed the presence of liver and bowel, kidneys, ureters, and testes, but heart, lungs, spleen, and adrenals were all absent.—The paper was discussed by the PRESIDENT and Dr. BLACKER.

SECTION OF LARYNGOLOGY.

Exhibition of Cases and Specimens.

A MEETING of this section was held on Dec. 5th, Dr. D. R. PATERSON, the President, being in the chair. The following exhibits were shown:—

The PRESIDENT: Three foreign bodies, the colour of which made extraction more difficult. (1) Red Seed from Bronchus, (2) Pink Coral Ring, and (3) portion of red vulcanite Tooth-plate from the gullet.

Dr. G. WILLIAM HILL: 1. Epidiascope exhibition of Skiagrams and Diagrams of Pharyngeal Diverticula, including X ray prints of four cases examined by the exhibitor. 2. A patient from whom a Post-cricoidal Pharyngeal Diverticulum was recently removed by operation.—The PRESIDENT remarked on the difficulty usually experienced in finding the opening of the œsophagus.—Mr. E. B. WAGGETT related cases in which the patients were taught to syringe out their pouches after dinner regularly.—Mr. E. D. DAVIS related the satisfactory post-operative history of 8 cases out of 11 which he had traced, which were chiefly cases operated upon by Butlin.—Mr. HERBERT TILLEY, Mr. T. B. LAYTON, Mr. H. W. FITZGERALD POWELL, Mr. NORMAN PATTERSON, and Dr. J. DUNDAS GRANT also took part in the discussion.

Mr. TILLEY, Mr. SOMERVILLE HASTINGS, and Mr. A. J. MARTINEAU each showed results of cases of Sarcoma of Naso-pharynx treated by radium or radium emanations.—The cases were discussed by the PRESIDENT, Dr. P. WATSON-WILLIAMS, Mr. WAGGETT, Mr. C. W. M. HOPE, and Dr. W. JOBSON HORNE, the latter emphasising the necessity of establishing the malignant nature of these growths beyond any doubt before publishing the cases as cured.—Mr. FITZGERALD POWELL and Dr. HILL also took part in the discussion, and Mr. W. D. HARMER stated that recurrence would take place for certain at a later date.—Mr. MARTINEAU and Mr. HASTINGS replied, and Mr. TILLEY remarked that the closer the resemblance of these growths to embryonic tissue the greater the likelihood of benefit to the patient by this form of treatment.

Mr. LAYTON: Two cases of Bilateral Abductor Paralysis.

Mr. A. J. M. WRIGHT: Specimen of a Thyroglossal Cyst causing dyspnœa in a woman aged 54.

Mr. G. POTTS: Laryngeal case for diagnosis in a man, aged 45, who had hoarseness for five years, a swelling over the right side of thyroid cartilage for one year, and a laryngeal swelling which obscured the rima glottidis. Sterile pus had been withdrawn by exploratory puncture.—Dr. DUNDAS GRANT and Mr. HAROLD BARWELL suggested that it was a case of tuberculous perichondritis.

Dr. J. DONELAN: 1. Vertical and horizontal gripping forceps for use in various tonsil operations. 2. A combined septal resector, comprising knife, with straight and curved instruments for raising the muco-perichondrium.

Mr. E. A. PETERS: 1. Case of Polycythæmia rubra. 2. Infiltration of both vocal cords; deflected septum.—Dr. JOBSON HORNE and the PRESIDENT thought that benefit would occur when the nasal obstruction was removed.—Sir STCLAIR THOMSON suggested that it might be a case of early tuberculous laryngitis.

Mr. H. D. GILLIES: Case of swelling on the left vocal cord for diagnosis in a man, aged 50, who became suddenly hoarse in March, 1913, after singing.—Dr. JOBSON HORNE thought the swelling was benign.—Sir FELIX SEMON related a similar case which was observed for 18 months, and then was proved by operation to be malignant.—Mr. W. HARRISON also discussed the case.

Mr. NORMAN PATTERSON: Epithelioma of Soft Palate, which had undergone three operations and was now undergoing X ray treatment. (Specimen and microscopical section were shown.)

Mr. THOMAS GUTHRIE: Tooth-plates and meat-bones removed from the œsophagus, together with radiograms by Mr. C. Thurstan Holland.

Mr. G. H. L. WHALE: Trauma from adenoid operation in a child who now showed a trellis-work of adhesions between the Eustachian tube and pharyngeal roof.—Mr. PETERS thought the result was probably due to injury from the finger nail operation.—Dr. JOBSON HORNE and Sir STCLAIR THOMSON thought that the adhesions were not due to faulty technique.—Mr. NORMAN PATTERSON related several similar cases.—Dr. DUNDAS GRANT suggested that faulty involution was the cause.

Dr. W. H. JEWELL: Aphonia in a boy, aged 14, with chronic rhinitis.

Dr. F. W. BENNETT: A case of Ulceration of the Fauces.—Sir STCLAIR THOMSON suggested pemphigus or tuberculosis.—Mr. TILLEY thought it was tuberculosis because of the suggestive appearance of the larynx.

Mr. TILLEY: Swelling of the Palate, which extended to the parotid region of the same side (left).—Mr. LAYTON thought the swelling to be cystic.—Mr. TILLEY said he intended treating this case with radium.

Mr. CECIL I. GRAHAM: Carcinoma of Party Wall, after laryngectomy in 1910, shown before the section in 1911, with recurrence in the scar three and a half years after the primary operation.

Dr. ANDREW WYLIE: A case of Chronic Laryngitis in an unusual form.

Mr. BARWELL: 1. Nasal Obstruction from a polypoid mass in a girl aged 15. 2. Fungating Mass in Right Tonsil in a boy aged 16. A microscopical section would be made to determine the diagnosis of this case, which presented unusual features.

Mr. PATRICK DEMPSEY: Specimen of Œsophageal Diverticulum removed by operation three years ago.

Mr. LAYTON: Subglottic Swelling in a man aged 40.

SECTION OF ANÆSTHETICS.

Fatalities Occurring during Anæsthesia.

A MEETING of this section was held on Dec. 5th, Dr. J. BLUMFELD, the President, being in the chair.

Mr. A. L. FLEMMING read a paper on Fatalities occurring during Anæsthesia, as reported in the lay press from 1910–1913. He regretted that the results and figures could not be of great scientific value, as so many of the reports were very meagre in detail, and proceeded to point out that the present system of inquiry into these matters by coroner and jury was useless both from a medical and legal point of view. Most of the fatalities had occurred, so far as he could discover, when the anæsthetic was being given by men who had no special experience in the administration, and he urged the teachers to remember that very often the student learnt from observation, and that when he saw experts giving chloroform with ease and without accidents occurring he was apt to think the administration easier and safer than it really was. He (Mr. Flemming), therefore, urged teachers to impress on the student that ether was the anæsthetic for the inexperienced and that chloroform should be left to the skilled and expert man. He said that a large proportion of the fatalities appeared to have been due to the selection of the wrong anæsthetic for the particular case, and gave as an instance the administration of nitrous oxide to a patient suffering from angina Ludovici. He further pointed out that a considerable number of deaths had occurred before the operation had started, and in almost all of these cases the anæsthetic used for induction was chloroform and the patients had died in the struggling stage. This, he maintained, showed clearly that it was better and safer to induce anæsthesia either with gas and ether or ether rather than with chloroform.

Sir FREDERIC HEWITT said that he took a keen interest in Mr. Flemming's paper because it clearly demonstrated the pressing need of certain reforms in regard to deaths connected with anæsthetics. It was simply appalling that so little notice was taken of the unnecessary wastage of human life, which so often occurred. Whilst it could not be denied that many of these fatalities were unavoidable, he (the speaker) had no doubt in his own mind that in a large number of the cases, possibly in the great majority, life might easily have been saved had the proper anæsthetic been used and the administration been conducted by an experienced administrator. Mr. Flemming's statistics lent great weight to the contention lately put forward by Dr. W. A. Brend that the coroner's court, as at present constituted, was not only useless but harmful when it essayed to inquire into deaths connected with anæsthetics. It was little short of a farce for coroners' juries to express views as to how and why patients died during surgical anæsthesia. It was the duty of the medical profession to combine and to urge the introduction of some kind of private inquiry as a substitute for the present coroner's inquest. Such an inquiry should be conducted by a trained medical man, with or without an expert assessor. The present system was useless because the information asked for and obtained was not useful for scientific and statistical purposes; it was harmful because it inflicted unnecessary pain and discredit upon the relatives of the deceased and the medical practitioner One of the recommendations of the Home Office departmental committee, appointed a few years ago to consider, *inter alia*, the administration of anæsthetics, was to the effect that "a small standing scientific committee on anæsthetics should be instituted under the authority of the Home Office," but this recommendation, like others, has become a dead letter. Such a committee would be most valuable as an intermediary between the private Home Office inquiries on the one hand and the various professional and educational bodies on the other. Amongst the latter bodies he might mention the Section of Anæsthetics he was now addressing, the General Medical Council, and the British Association for the Advancement of Science. He (Sir Frederic Hewitt) was aware that the Royal Society of Medicine, being essentially a scientific body, was disinclined, if not unable, to take any part in the reforms that were needed. But surely the matter was of such moment that the Section of Anæsthetics might, as a scientific body, further the introduction of reforms, and work in conjunction with other bodies to remedy the existing defects in medical practice. The two other bodies to which he had referred, viz., the General Medical Council and the British Association for the Advancement of Science, already had anæsthetics committees. The committee of the General Medical Council, however, as at present constituted, existed only for the purpose of considering any proposals that might be made for legislation. Possibly it might be found practicable for the functions of this committee to be extended so that it might from time to time advise the Council as to what regulations should be issued to the profession in regard to the selection and use of anæsthetics. Similarly, the Anæsthetics Committee of the British Association would also issue reports and recommendations. In this way the Home Office Committee would, on the one hand, be in touch with the General Medical Council, the British Association, and the Royal Society of Medicine; whilst it would, on the other hand, receive the reports and statistics furnished by the private inquiries conducted by its officers upon deaths during anæsthesia. The machinery thus established would be of the utmost importance to the community. There could be no doubt that had ether been used in the great majority of the cases in the opening paper, or had chloroform been administered by the percentage system, many lives would have been saved. Surely there should be some such machinery as that suggested for the guidance of the profession, machinery by which the General Medical Council would issue regulations for the safety of patients during anæsthesia, and by which the Home Office Anæsthetics Committee could obtain reliable statistics as to the frequency of deaths under anæsthetics and other particulars.

Dr. LLEWELYN POWELL dealt with the difficulty of making the student realise the importance of keeping the air-way clear, and thought that probably men preferred to give chloroform as it was easier to give on a mask than to give ether with some of the complicated apparatus in present use.

Dr. A. GOODMAN LEVY touched on the question of auricular fibrillation, and went on to suggest that the section might be able to take up the collecting of reports of anæsthetic fatalities so that a proper record could be made.

Mr. H. E. G. BOYLE commented on the relatively large number of deaths reported under N_2O, and thought that under more ordinary circumstances and with usual care death ought never to occur under N_2O. He alluded to the fact that most of the fatalities had occurred with men who had had a very limited experience of anæsthetics, and felt that it was high time that the public at large realised that they ran a decided risk in allowing themselves to be anæsthetised by inexperienced men. He dealt with the large number of cases that had died before the operation had begun, and in whom $CHCl_3$ had been used to induce anæsthesia. For a long time he had held that it was dangerous to induce with $CHCl_3$, and felt that if anæsthesia was induced with gas and ether, and then continued either with ether or chloroform, the death-rate would sensibly diminish. He felt that cases ought always to be reported, but the coroner and jury system was wrong. Either a board of medical men or anæsthetists to act as advisers to the coroner should be appointed.

SECTION OF PSYCHIATRY.

Exhibition of Cases.

A MEETING of this section was held at the Bethlem Royal Hospital, St. George's Fields, on Dec. 9th, Sir GEORGE H. SAVAGE, the President, being in the chair.

Dr. W. H. B. STODDART, the medical superintendent, showed an interesting series of cases. The first was a middle-aged woman suffering from loss of memory and some paramnesia and peripheral neuritis. It was polyneuritic psychosis, with very severe peripheral nerve disturbance. She had both rectal and vesical difficulty, though probably of mental causation. She was constantly hearing voices. The next case was one of Apraxia in a woman, aged 54, who four months ago had a slight attack of hemiplegia, followed by mild aphasia. She now had ideational inertia on the agnostic side; she would name articles first shown her correctly, but later she could not do so. There was probably either a senile cortical atrophy, or a disturbance and disorder of cerebral vessels. He also exhibited a case of Hypopituitarism in a married woman, aged 69, who was admitted ten months ago with mental confusion and occasional lapses of memory, restlessness, hallucinations of vision, and

cutaneous sensations, which latter had now passed off. The patient had recently developed thickening of lips and tongue. She had an increased capacity for sugar, being able to take 350 grm. of dextrose without any being excreted. She improved while taking large doses of pituitary extract, but not upon thyroid extract. She was mildly depressed but sometimes witty. Other cases shown were a girl, aged 18, the subject of Anxiety Neurosis, who had shown moral lapses in the direction of lying and stealing, and later became uncontrollable; a married woman, aged 45, the subject of Dementia Paranoides; and a similar one in a single woman, aged 47, who considered a Paris hypnotist responsible for casting a spell over her.

Dr. RALPH BROWN showed a case of Congenital Neurasthenia in a man aged 19. No nervous heredity, but when 9 years of age he received a blow on the head. In 1912 he became morbidly introspective, and felt he had committed the "unpardonable sin" (blasphemy). He recently threatened suicide.

Dr. BROWN also showed an unusual case of General Paralysis in a man. He had a brother an epileptic. There were visual and auditory hallucinations, and memory, both recent and remote, was poor. Knee-jerks increased, but no other physical signs of general paralysis. Lumbar puncture in May showed the cerebro-spinal fluid normal. Wassermann reaction (both blood and cerebro-spinal fluid) negative. Speech slow and rather hesitating, with some fibrillary tremor of the tongue. He had delusions of a megalo-melancholic nature, and auditory hallucinations of a persecutory type. There had been no anti-syphilitic treatment. It was not uncommon for cases of general paralysis to reach an advanced stage with but little abnormality of pupils; but it was less common to find the Wassermann test negative. The last patient was a man, aged 23. Six weeks ago he was admitted to the Bethlem Royal Hospital in a maniacal condition. The excitement was now diminishing, but the patient was still very exalted and had expansive and grotesque delusions, with auditory and visual hallucinations. Memory good and no confusion. General health was fair. The case was regarded as one of acute mania, general paralysis, or dementia præcox of the paranoid type, probably the last.

HUNTERIAN SOCIETY.

Migraine.

A MEETING of this society was held on Nov. 26th, Dr. W. J. M. ETTLES, the President, being in the chair.

Dr. A. S. CURRIE opened a discussion on Migraine. He said that nothing worse in the way of poignant suffering could well be imagined than the intense headache, photophobia, hemianopia, scintillating scotoma, and other concomitants of the disease. Hughlings Jackson truly described migraine as the congener of epilepsy, and, accepting this view, Dr. Currie would classify these maladies in the following order: (1) migraine; (2) minor epilepsy; (3) gross epilepsy. Sir William Gowers had seen migraine cease on the appearance of epileptic convulsions, to reappear on the cessation of the convulsions. Migraine was more closely allied in its phenomena to minor than to major epilepsy. There was a striking similarity between the first two in the dreamy states, and diplopic mentation often observed in both and in the after-languor which was also present in the major state. Dr. Currie gave a series of cases from his note-books illustrating the various types of migraine, most of which exhibited the phenomenon of "reminiscence." He also gave family histories of cases of migraine where one or more members of the families suffered from true epilepsy. While he had had a large number of cases in women, he had also had a large number among professional men, and generally the cases were met with among those of a high standard of intellectuality. Another feature in a few of his cases was that instead of "reminiscence" there was a sense of gigantism during the attacks. Reference was made to the exciting causes—e.g., ocular defects, gout, rheumatism, and defective metabolism. For the relief of pain during an attack phenacetin in 15 to 20-grain doses at frequent intervals was found to give greater relief than any other drug. "Reminiscence" was a symptom of the condition rarely mentioned in text-books or even in monographs on the subject, and yet it was a frequent concomitant of the disease. From the biography of Charles Dickens it appears that he suffered from "dreamy states," and the description in the character of David Copperfield of his having been on a previous occasion in precisely the same circumstances and environment was doubtless a personal experience of the author's. The phenomenon of "reminiscence" was best described as a "mental diplopia." Dr. Jackson wrote[1] that there was a close analogy between the visual diplopia of ophthalmologists and mental diplopia. In the former with *slight* divergence of the visual axes there was *more* visual confusion; in the latter with a *shallow* dissolution of the highest centres there was *more* mental confusion. Dr. Currie suggested that in migrainous reminiscence there was a gradual development from a faint mental picture to a clear-cut, definite impression, and that the latter evoked the memory of the former and appeared as a mental diplopia. He had noticed a similar phenomenon in regard to auditory impressions. Migrainous patients had been observed to sit for some time silent after being questioned, and then without the question having been repeated to awake to the fact that they had been questioned, and return a correct answer. In migrainous mental diplopia the dissolution of the highest centres was more shallow than in minor epilepsy, and this constituted a sharp dividing line between the two maladies.

Mr. SYDNEY STEPHENSON urged the dependence of many cases of migraine upon eyestrain. He considered that the refraction should be corrected as a routine measure in every case of migraine, and he did not think that a practitioner could be said to have consulted the best interests of his patient unless he had taken that step. It was very important to understand that relief might often be given by suitable glasses, all the more so since the condition could not be said to be definitely or consistently under the influence of any medicament, ancient or modern.

Mr. C. WRAY said he hesitated to assume that he had cured *true* migraine by glasses, but in over 35 per cent. great benefit resulted, and the attacks were lessened in number, duration, and severity, even without the use of drug treatment. Too much was expected from weak cylinders and far too little from reading glasses to correct weak accommodation, which was not unfrequently present. At times young migrainous subjects with lowest grade astigmatism required in addition to the cylinder correction + 0·75 to + 1·25 spherical for reading and close work—a sufficient proof that the accommodation should receive as much attention as the examination of the distant vision. In such cases, if the patients were poor, it would seem best to try the spheres only for close work and ignore the expensive cylinders, having recourse to them only when the simpler glasses failed. The spectacle treatment of migraine should be largely determined by the frequency of the attacks, and it was particularly desirable not to disfigure young females and some men with constant use of glasses when the attacks occurred at long intervals. It was doubtful if exact correction with 0·25 cylinders could be made by subjective tests. Even a small error in the axis of a cylinder caused a somewhat glaring distortion of plane geometric figures. The patient's complaints were too vague to put the average practitioner on the right track, but this so-called metamorphopsia was easily detected by directing the patient to notice the sides of the Jaeger type mount. A side seen through a wrongly placed cylinder would be at fault, and if the axes for both eyes were wrong and the patient had binocular vision both the right and left sides would be at fault, and the mount would seem too large at the top or the bottom. At times this was due to cyclophoria, in which instance the distance cylinder could not be tolerated for reading. Occasionally patients were assured the discomfort from the glasses would soon disappear, and this was true, as the more intelligent ones suppressed the image seen by the more troublesome eye. This mostly implied the development of exophoria and the addition of aching at the back of the eyes to his sufferings. Migraine was due to a number of causes acting at the same time, and a careful examination of the nose should be made for spurs and enlarged turbinates impinging on the septum. At times when an attack subsided rapidly the patient had a sensation as of an obstruction giving way, and this was no doubt due to the shrinking of the vascular tissues of the middle turbinate. At the patient's first visit the frequency, duration, and severity of the attacks should be ascertained, also the prodromata and their duration, the behaviour of the

[1] THE LANCET, vol. ii., 1887, p. 890.

stomach during the attack, and the commonest exciting causes. Patients in whom the theatre or similar entertainments caused an attack should take 15 grains of bromide of potassium, one dose before leaving home and a previous one three hours earlier. The drug might be similarly used in cases in which a railway journey precipitated an attack. At times migrainous patients who vomited several hours after drinking beer had an odour of it in the vomit. In such cases the administration of drugs by the mouth was likely to be a failure and illustrated the importance of allowing at least three or four hours to elapse after a meal before having resort to their use. When the patient awoke with premonitions the greatest success was obtained from phenacetin and caffeine. There were many objections to prescribing tablets, but the rarer the attacks the more necessary they became, as it was impossible to keep liquid preparations for an indefinite period. The first step should be to ascertain the tolerance of the patient to the drug. The number ordered should be put into a wineglassful of water and crushed, after which a teaspoonful of spirit should be added. When the patient awoke with distinct premonitions he should take his tablets, go back to bed, and not take any food for at least an hour. The success of this method was very considerable and the efficiency of the drug greatly increased by the addition of the spirit.

Mr. REGINALD EVERSHED was of opinion that migraine was due to an error of refraction plus some form of toxæmia caused by a defective metabolism of certain purins, and that if migraine was not a form of youthful gout, as suggested by Trousseau, there was a close connexion between them. Personally, he was inclined to follow Trousseau's lead, both from an individual acquaintance with the malady for 30 years and from experience gained in general and special practice for 24 years. The following reasons led him to this conclusion: in patients subject to migraine a history of gout could usually be obtained, and in later life when the migrainous attacks had passed away gout in some other form made its appearance; further, the predisposing factors in an attack of migraine, other than the error of refraction, were similar to those which precipitated an attack of gout. Treatment to be curative must be continuous, and for the past five years Mr. Evershed said he had adopted the following method with success: the first essential was to fully correct the error of refraction and to re-examine the refraction periodically, then the patient was instructed to take every night 5 grains of acetosalicylic acid, and once a week a purge containing mercury in some form, and on the following morning a mineral water; the doses of purge and mineral water should be so adjusted that one thorough evacuation was caused. The patient should also avoid certain articles of diet, such as soups, sauces, and gravies made from bone stock, high game, sweetbreads, liver, and kidneys, jellies, and abstain from beers and whiskies; finally, the clothing worn should be regulated relatively to the temperature of the air. Should it be necessary to prescribe treatment for an attack the following would be found to give relief: abstention from food, or if it was necessary to take some, then hot water arrowroot only, rest in bed, the patient wearing a warm night-cap, and having a hot-water bottle in bed, and an extra covering on the bed; in these cases where it was impossible for rest to be taken, then 10 grains of phenacetin, followed in an hour by 5 grains, would give relief, especially if half an hour could be spent in front of a hot fire; but this palliative treatment would only postpone the attack, and it was probable the next one might be more severe than usual. Whatever the treatment adopted, Mr. Evershed wished to emphasise the fact that it was absolutely indispensable to obtain an accurate and full correction of the error of refraction, even to the extent of using atropine in an adult patient, and that the glasses to correct the error must be worn constantly.

Mr. ARTHUR COOKE said that the last three speakers had taken up a strong view that migraine was chiefly caused by eyestrain, in contradistinction to the Vice-President, who seemed to incline to the view that it was closely allied to "petit mal." Much depended in this connexion on whether a large number of ocular headaches closely resembling migraine were to be included in the same category, and a distinction was required. The following definition of migraine would probably be agreed upon: "A paroxysmal affection characterised by severe headache, generally ushered in by some premonitory symptoms, often associated with nausea and vomiting." The premonitory symptoms were usually visual in the form of scintillating scotoma, but might take less noticeable forms; and in a few cases, which must be classed as migraine, might be absent. Such attacks would not include the common ocular headache, and he ventured to suggest that the last speaker, in finding 12 per cent. of migraine cases in his refraction cases, had included some types of headache which were not usually considered to be migraine. Such curious explanations had been given of the pathology of migraine as the following: "a limited arterio-sclerosis," "uncontrolled action of the sympathetic system ending in its exhaustion," and by Dr. Spitzer in 1901 it was stated to be due to "stenosis of the foramen of Winslow." Probably the simple explanation was that migraine was due to two factors—first, the irritable or explosive condition of the central nervous system; and second, some irritation from the periphery, usually eyestrain. When migraine took place there was an explosive outburst, apparently out of all proportion to the cause. The proof that eyestrain was the actual cause was given mainly by the treatment—that is to say, correction of the eyestrain by suitable lenses relieved or abolished migraine in a vast proportion of cases. Just as the diagnosis of tertiary syphilis was proved by the treatment by iodide of potassium and consequent abolition of the lesion, so the origin of migraine in eyestrain was proved by the relief of the condition when the eyestrain was removed. As to that relief, a brief abstract of cases would show this. In refraction cases extending over five years, about 3,500 cases yielded 28 cases of migraine. Nineteen had been cured or much relieved, in one no change took place, three were better from other causes not connected with the eyes, and five had been lost sight of.

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Exhibition of Specimens.—Treatment of Abortion.

A MEETING of this society was held on Nov. 26th, Dr. LINDSAY, the President, being in the chair.

Dr. J. NIGEL STARK showed a specimen of a Cervical Fibroid with a small Intrauterine Polypus which had been the cause of severe hæmorrhage.

Professor R. JARDINE showed a Uterus removed for adenocarcinoma.

The PRESIDENT showed a series of specimens illustrating Necrobiosis in the Embryo.

A discussion on the Treatment of Abortion was introduced by Dr. JAMES TODD, who spoke from the point of view of the general practitioner. Dr. Todd said that sometimes the term abortion was limited to those cases where pregnancy terminated during the first three or four months, but he proposed to speak of it as the termination of pregnancy before the child was viable. The importance of the subject was recognised by medical men, but the public still regarded it as a less serious condition. A large proportion of cases received no medical attention. Dr. Todd's experience was that only 10 or 12 cases out of 30 to 50 abortions were treated by medical men. Practitioners should do all in their power to educate the public in the dangers incident to abortion. Preventive treatment depended on a knowledge of the antenatal pathology. Anæmia, malaria, and syphilis were mentioned as well-known causes. The exciting cause frequently was over-exertion or some local lesion—e.g., displacement of the uterus, myomata, or most commonly endometritis. In cases usually termed "habitual abortion" iron with chlorate of potash was useful in treatment. In threatened or recurring abortion treatment depended on diagnosis, and this was sometimes difficult. Extrauterine pregnancy had to be kept in mind. If pregnancy was diagnosed the question whether the abortion was avoidable or inevitable was a vital one. When hæmorrhage was the leading symptom its continuance alone should not be taken as proof of inevitable abortion. If the bleeding was sudden and large it generally denoted separation of the ovum. Rest in bed and rest to the reflexes by opium were recommended if the pregnancy was likely to resume its normal course. In many cases of inevitable abortion Dr. Todd had felt justified in adopting an expectant attitude. The patients feared an operation and grudged the expense, and the conditions of the house were not without danger. Two conditions of the patient which compelled interference were excessive bleeding and signs of sepsis. Plugging the vagina in a working-class house was

difficult and dangerous, and of little use in preventing bleeding. Evidence of early septic infection meant emptying the uterus. Frequently the uterus could be cleared out thoroughly with the finger, if not by the gentle use of a blunt curette. The good result of emptying the uterus was frequently very striking. Dr. Todd considered that routine douching after operation might very easily do harm. He usually kept the patient in bed a shorter time than after a normal labour.

Professor JARDINE discussed the subject from the consultant's point of view. He remarked on the increase of cases of abortion which had been noted in the practice of the Glasgow Maternity and Women's Hospital recently. The consultant's point of view was essentially that of the practitioner—viz., the best treatment for the patient. He had not yet found a case where he could say it had been properly plugged before coming to hospital. A few tampons of wool in the vagina were not a sufficient plug and did not do any good in preventing bleeding. He had found that chlorate of potash was a useful drug and had good effects from it in many cases. In using the curette he advocated an instrument with a large loop, but with a sharp edge, as it was not easy to remove adherent decidual tissue otherwise. Professor Jardine thought that sometimes a misconception arose in practitioners' minds as to when an abortion was complete, and he had found in examining students that no clear idea was given by most of them as to what was included in the term "ovum." It was important that this point should be emphasised to practitioners who undertook the treatment of these cases of abortion. In septic cases often those with profuse discharge got well, while those with little or no discharge were really cases of septicæmia and were very fatal. Professor Jardine pointed out the dangers of bleeding and urged efficient plugging, which required really a large quantity of sterile gauze if the plug was to be of any use.

Dr. STARK asked regarding syphilis as a cause of abortion. He remarked on the increase of cases seen at the Royal Samaritan Hospital. He preferred the use of the curette rather than the fingers. He thought the vaginal plug of little use in the treatment of bleeding, and advocated ergot.

Dr. CASKIE urged the use of a large plug and the administration of ergot and opium.

Dr. E. H. T. OLIPHANT mentioned the use of large doses of chlorate of potash up to 40 grains, and had seen it used for months with beneficial results. He referred to its action on the bowel. He suggested the investigation of a large number of cases for data as to the causes of abortion, and referred to the medico-legal aspect of the subject.

Dr. CRAIG thought that the increase in cases seen at the special hospitals was due to the fact that the general hospitals were refusing these cases. He used a large plug, and was not satisfied that the plugging was sufficient until pressure on the bladder was complained of. He spoke of syphilis and intestinal toxins as causes of abortion.

Dr. MACFARLANE advocated the value of plugging in abortion cases.

Dr. CAMPBELL remarked on the growing use of abortifacient drugs, and mentioned a case where a bone needle had been used to procure abortion, and the needle had become impacted in the vagina.

The PRESIDENT said that some cases of abortion were inevitable from the time of conception, and the causes were to be sought between ovulation and impregnation, and also during the early period following conception. He mentioned the influence of vaginal bacteria, and referred briefly to this cause of abortion in cattle. He advocated as treatment rest, opium, and ergot properly administered. He thought that ergot hindered complete expulsion if given when the ovum was being expelled. He described the use of plugs as stimulating the vaginal reflex, especially if the plug pressed on the vaginal fornices.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF OBSTETRICS.

Exhibition of Specimens.

A MEETING of this section was held on Nov. 7th, Dr. M. J. GIBSON, the President, being in the chair.

The PRESIDENT exhibited a specimen of Fibroid Uterus removed after Cæsarean Section for Obstructed Labour and Placenta Prævia, from a woman aged 36, admitted to hospital in a collapsed condition, the vagina having been packed first by a clinical clerk, with a history of having had hæmorrhage for several hours previously. The patient made a good recovery. The specimen raised important questions: firstly, the value of Cæsarean section for the immediate control of hæmorrhage in placenta prævia; secondly, the treatment of a single large interstitial myoma after Cæsarean section; and thirdly, the value of hysterectomy in cases which were probably septic.

The PRESIDENT also exhibited a specimen of Cancer of the Ovary removed from a patient, aged 63, who had never borne a child. She had suffered very little pain. The tumour was removed entire, together with the uterus and the other ovary *en masse*. The patient made a good recovery. The points raised were the necessity for removing all the cysts of the ovary entire and the need for removal of the other ovary and uterus in cases of cancer.

The PRESIDENT also showed sections from another case in which the ovaries and uterus had become cancerous in a patient whose breast had previously been removed for cancer.

Dr. B. A. H. SOLOMONS, Dr. GIBBON FITZGIBBON, and Dr. H. JELLETT took part in the discussion, and the PRESIDENT replied.

Dr. JELLETT showed a Submucous Myoma removed by Myomectomy from a woman aged 30, admitted on Oct. 18th, 1913. She had been married three months, and had not been pregnant. She complained of a tumour, which she first noticed a year and a half previously. It was then about the size of an orange, and had been growing steadily ever since. The abdomen was found to be occupied by a tumour reaching up to the umbilicus, hard, and incorporated with the uterus. A submucous myoma, the size of a large orange, was found projecting from the cervix, and probably continuous with the tumour above. Around this the cervix could be felt very much thinned out and dilated.

Dr. JELLETT reported a case of Full-time Extra-uterine Pregnancy with Uterus in a patient admitted on June 12th, 1913, aged 38, married 15 years. She had four children at term, four abortions, and was pregnant at term when admitted. On admission the top of the fundus was just above the umbilicus. No fœtal heart heard. Two days later—that is, June 14th—an attempt was made to induce labour by Krause's method. The cervix seemed somewhat hard and small for a pregnant cervix, but nothing else abnormal. Bimanual examination afforded no information. Two bougies and tents also were inserted, and the vagina was packed with iodoform gauze in sterile glycerine. On the following morning, as labour had not come on, the tents and bougies were removed, more tents inserted, and the vagina packed as before. Next morning, still no labour pains, so the tents were removed. Fœtal head felt low in posterior fornix. A foot was brought down, the head pushed up, and the child extracted, during which the cervix seemed to tear behind. Fœtus was macerated. On attempting to remove the placenta manually the hand entered a cavity, and a much larger cavity was felt on right, extending up towards the liver. No placenta could be felt, but a piece of omentum came down and the intestines could be felt. Laparotomy was immediately performed. Free blood, but not much. Placenta was free and was removed first. An abdominal pregnancy was discovered, the sac apparently originating in the right broad ligament, extending out towards the left, and up on right towards the liver. The posterior lip of the cervix was torn, the tear extending downwards across the posterior fornix. The lower part of the uterus seemed very rotten and friable. Supravaginal hysterectomy was done, and the sac packed with gauze, the end being pushed out through the tear in the posterior fornix, and the cavity stitched together over the gauze. Two bimanual examinations had failed to reveal the presence of a small uterus, this condition being only discovered on laparotomy.—Dr. R. J. ROWLETTE suggested that, having regard to the fact that six weeks previously the patient, who lived in the country, had labour pains, the uterus at the time ruptured and allowed the greater part of the ovum to pass into the abdominal cavity, and that the uterus then involuted.—Mr. E. H. TWEEDY, Sir WILLIAM SMYLY, Dr. T. NEILL, Dr. V. J. MCALLISTER, and the PRESIDENT took part in the discussion.—Dr. JELLETT, in reply, said that the sac of the ovum was adherent to the intestine and omentum, which disproved Dr. Rowlette's

suggestion of the extrusion of the ovum through a rupture of the uterus six weeks before the patient came to hospital. Mr. Tweedy's previous myomectomy was done on the anterior wall of the uterus, and Dr. Jellett did not consider that it had had any effect in producing the condition met with. Neither Dr. Madill nor himself had the least idea that they were not dealing with an intra-uterine pregnancy until the abdomen was opened after the rupture of the gestation sac.

SECTION OF SURGERY.

Paget's Disease of the Nipple.—Carcinoma of the Breast.

A MEETING of this section was held on Nov. 28th, Mr. K. E. L. G. GUNN being in the chair.

Mr. R. C. B. MAUNSELL and Dr. J. T. WIGHAM communicated a paper on a case of Paget's Disease of the Nipple. Paget's original description was quoted, then an accurate clinical and microscopical description of the case was read. The communication was profusely illustrated with original coloured drawings and lantern slides of the clinical and microscopical appearances.—Mr. GUNN thanked Mr. Maunsell and Dr. Wigham for bringing forward the case. The rarity of the disease, he said, made the subject of greater interest, although more difficult to discuss.—Mr. A. J. BLAYNEY said that Mr. Maunsell regarded the case as of the nature of rodent ulcer. From this opinion he dissented. Another point of interest was that all cases observed terminated in cancer of the breast, and this also was contrary to the theory of rodent ulcer. It was pointed out that in most cases of rodent ulcer no enlargement of glands was to be found in the neighbourhood. Although he had an open mind on the subject he was inclined to the view that it was a case of malignant growth of the skin which subsequently spread to the breast.—Mr. H. STOKES also discussed the case.—Mr. MAUNSELL, in replying, said that before, at, and subsequent to operation a search was made for glands, but none were found. In his and Paget's description induration was not mentioned. The appearance or process of cells was more like that seen in rodent ulcer than anything else.—Dr. WIGHAM, replying, said that the case should be considered rather as a skin cancer than as rodent ulcer.

Mr. W. PEARSON read a paper on the Technique of Operation for Carcinoma of the Breast. He pointed out the principle on which modern radical operations for carcinoma are based, and communicated the following secondary principles of importance: (1) To avoid dissemination and wound-implantation of cancer cells during operative procedures; (2) to minimise hæmorrhage and shock; (3) to minimise the risks of infection; and (4) to avoid unnecessary mutilation and loss of function. The scope of the radical operation in favourable cases of carcinoma of the breast, in the light of Handley's investigations, was indicated, and the application of the secondary principles to the procedure discussed. The precise technique adopted was then explained with the aid of lantern slides, the special points on which emphasis was laid being: 1. That extensive removal of the fascial tissues with their contained lymphatics was the most important safeguard against recurrence. 2. That the operation, even in the making of the cutaneous incisions, should be regarded as a two-stage procedure—an axillary portion which should be first carried out, and, secondly, an abdomino-thoracic portion. 3. The use of the deep fascia over the clavicular fibres of the pectoralis major (which fibres might safely be retained in favourable cases) as a guide to the separation of the clavicular from the sternal divisions of the muscle. 4. The use of clamps on the pectoral muscles before division, both to act as retractors and to prevent possible dissemination. 5. The systematic exposure and securing of the blood-vessels in such a way that the operation was practically a bloodless one. 6. The necessity for additional drainage, besides the ordinary drain in the axilla, in certain cases. 7. The reconstitution of the axillary vault as the greatest safeguard against subsequent loss of function. 8. The importance of early movements of the arm.—Mr. GUNN emphasised the point that success in curing cancer of the breast depended more on early diagnosis than on the technique of the operation.—Mr. S. S. PRINGLE said that the procedure mentioned in the paper was the same as he had been carrying out for some years. A thing which impressed him with regard to this operation was the importance of keeping the upper ends of the incision well out of the axilla on account of the difficulty of properly sterilising the axillary fossa.—Mr. J. F. L. KEEGAN, Mr. STOKES, Mr. MAUNSELL, and Mr. C. A. BALL also discussed the paper.—Mr. PEARSON replied.

MANCHESTER PATHOLOGICAL SOCIETY.

MANCHESTER PATHOLOGICAL SOCIETY.—A meeting of this society was held on Dec. 10th, Dr. A. Brown, the President, being in the chair.—Dr. Elliott gave an address on the human remains found on the site of the Roman cemetery recently discovered in Chester. The address was illustrated by lantern slides and autochromes. The situation and extent of the crofts, known in ancient times as "Lady Barrow's Hey," were described, the only portion remaining as meadow land until two years ago being the field adjoining the infirmary and known as the "Infirmary field." On this field two new wings in connexion with the infirmary extension are now being erected, and the excavations for their foundations have disclosed the site of a Roman cemetery. Some 30 burials have already been disclosed within a small area, in addition to a number of indiscriminate Roman interments at the back of the existing infirmary on the site of the new out-patient department, and in close proximity to the main site. The probable extent of the Roman city as contrasted with the present mural boundaries was discussed, showing that the site of the cemetery, although within the area of the modern walls, was certainly extra-mural in Roman times. The burials in nearly every case were in the boulder clay, superficial to which was a layer of virgin soil some two feet in depth, with a layer of surface soil of about the same depth above. A numbered plan of the graves was exhibited. Almost without exception the floor of the graves was sprinkled with a layer of finely divided, broken-up Roman tiles or bricks, mixed in many cases with charcoal. The varieties of burial were described and illustrated, comprising: 1. An arched tomb composed of sandstone blocks. 2. Tiled graves of rectangular box shape, composed of large roofing tiles forming the base, sides, and ends, three of which in one case bore the stamp of the Legion, Leg. XX. V. V., in each case on the surface of the tile looking inwards. The remains of male skeletons only were found in these "tiled graves." 3. Tiled graves composed of roofing tiles on each side meeting at an acute angle above, and thus forming on vertical section a triangular covering closed at the foot by another roofing tile. Outside the foot tile of one of those graves were found four vessels of Roman pottery (two of which were of Samian ware) with the bases perforated from without, and inside the grave under the feet of the skeleton were found the broken fragments of the bases with the potter's marks, thus throwing an interesting light on the graveside customs of that period. 4. A "cist" composed of sandstone blocks—the grave of a child. 5. Plain rectangular pits. In most cases numbers of roughly hewn sandstone "burrs" formed a superficial covering over the grave and surrounding area to prevent the inroads of wild animals. In one case a sheet of lead 16 inches wide covered the body from head to foot, being raised at the head end and curved over the feet. A number of skulls were exhibited showing the types of the inhabitants of Roman Britain: (1) the Mediterranean race; (2) the brachycephalic "Celt"; and (3) the extremely dolichocephalic skull of the type of Neolithic man. The origin and distribution of these races were discussed and illustrated. A number of interesting objects found in association with the burials were exhibited and illustrated, including brass coins of Antoninus Pius, Commodus, and a rare first century brass of Domitian; in several cases coins were found in the mouth, staining the lower jaw with verdigris; Roman lamp with maker's stamp "Fortis"; sandals with iron studs, those found in association with female skeletons being either devoid of studs or only provided with light ones; a stone "muller" with adhering vermilion and buff-coloured pigments associated with masses of fused bronze—in the grave of a male adult who had evidently been a worker in bronze; bone hair-pins and bones of animals; vessels of pottery and glass, some belonging to well-recognised types, others of rare occurrence; beads and fragments of bronze ornaments; oyster shells, &c. The almost universal occurrence of large iron nails, many with a projecting shoulder, was noted, and their significance discussed. In some of them adhering fragments of wood, which under the microscope could be identified as Pinus sylvestris, had been found in the later discovered burials. The stature of the individuals during life was estimated from the formulæ

worked out by Professor Karl Pearson and his pupils, as also the cubical capacity of the skulls. The peculiarities of the bones, both anatomical and pathological, were described. Several instances of metopism in the skulls and platycnemia of tibiæ were demonstrated. One example of hydrocephalus and one of exostosis in both external auditory canals were shown, as also a depression in the temporal bone indicating a healed mastoid abscess in another specimen. A typical achondroplasic skull of an adult was shown and the history and pathology of the disease indicated. Instances of caries in the well-worn teeth were few and far between, and instances of rheumatoid arthritis in the bones most exceptional. The early age at death was commented upon, and an illustration of an altar found in Chester erected by "Hermogenes, a physician," who is conjectured to have been physician to the Emperor Hadrian, was described as unique, the facilities for obtaining medical assistance at that early period in Britain being in all probability very remote. All the available evidence pointed to the fact that these burials were undoubtedly of the second century so far as excavated at present.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—At a meeting of this society held on Dec. 5th, Dr. F. S. Palmer, the President, in the chair, Mr. J. E. R. McDonagh read a paper on the Biology of Syphilis. He maintained that after infection one or more spores gain access to the skin where they develop. When sufficient cycles which comprise the life-history of the leucocytozoon syphilidis have been completed the patient develops a sore. The spores gain access to connective tissue cells, which multiply enormously. The spore is a small body consisting almost entirely of nuclein, which as such is powerless, therefore it is obliged to enter a cell. A nucleus cannot develop without a nucleolus of the lecithin-globulin compound. This can only develop at the expense of the host, therefore it is necessary for the spore to enter a cell, which in the case of syphilis is a connective tissue cell. The lecithin globulin is built up from the simple protein of the protoplasm of the connective tissue cell. The lipoid protein forms a colloidal membrane in which the spore or trophozoote develops. In this envelope the nucleus either buds to form sexual nexozoitæ, or it divides and subdivides to form an asexual spore cyst. The former occurs in every case of syphilis, while the latter has only been found in the lymphatic glands from severe cases of the early generalised disease. An asexual spore cyst may bud to form daughter spore cysts, the parasite by this time being extracellular owing to the degeneration of the connective tissue cell. In the other mode of development of the trophozoite about 7 to 15 bodies are formed, each one having a lecithin-globulin envelope. When fully developed the cell bursts, the sexual mexozoites escaping to form male and female genitocytes, both motile. Later the female loses the blepharoplasts, becomes non-motile, and if about to be fertilised the nucleus takes a central position. The male genitocyte enters a large mononuclear leucocyte, where the three nuclear bodies increase in size and form a coil, and from each nuclear body a number of spirochætæ arise, ultimately breaking loose, when each can be recognised as a true spirochæta pallida. In extracellular development each nuclear body divides and subdivides; general bodies may break away *en masse*, ultimately breaking up into distinct coccus-like forms. Each coccus-like body contains two rods, which eventually become typical spirochætæ pallidæ. The intracellular development, according to the author, has been found in every syphilitic lesion so far examined, while the extracellular has only been found in chancres and condylomata. During fertilisation the spirochæta appears to enter the female nucleus wherein it becomes lost. In both cases the nucleus containing male and female elements migrates to the upper pole. After impregnation a polar body is shot out with great force from the cell, and again another after a minute or two. The nucleus then divides and subdivides into spiroblasts, which later form sporozoites. Mr. McDonagh then discussed the biology of the secondary and tertiary stages and of syphilis of the nervous system. With regard to the mechanism of protection against the leucocytozoon, he suggested that this was by means of the "oxygen-chain," the first link being the real blood corpuscles (containing free oxygen and a peroxydase), the next link a mast cell (its nuclei containing free oxygen and an activating ferment), and the last link the protoplasmic (containing oxygen but no peroxydase). The accelerator of the enzyme action is the element in the drug prescribed, such as arsenic, antimony, or mercury. He argued that as the protoplasm of plasma cells contains oxygen and lipoids, and metals accelerate an oxidising enzyme, possibly this enzyme abstracts oxygen from the lecithin, globulin envelope of the parasite, the envelope extracts free oxygen from the nucleus, with the result that if the ferment is powerful enough all free oxygen is abstracted and the parasite dies. The male gamete or spirochæta pallida is destroyed more quickly than other phases, and has also the strongest reducing action. In the author's opinion nerve cells are probably only influenced by spirochætæ. These being rich in unsaturated fatty acids snatch up the fats, lipoids, carbohydrates, and proteins of nerve cells. In the same way he maintains that nerve cells can take up substances, such as arsenic, and enable them to become part of their lipoids. Hence the nerve degeneration following injections of salvarsan into the theca.—The paper was followed by a discussion, in which the President, Staff-Surgeon G. B. Scott, R.N., Major Harrison, R.A.M.C., Mr. Aslett Baldwin, Mr. Rickard W. Lloyd, and Dr. Lloyd took part, and Mr. McDonagh then replied.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Nov. 28th, Mr. A. Ernest Maylard, the President, being in the chair.—Mr. Henry Rutherfurd showed: 1. A case of Plexiform Neuro-fibroma in a girl aged 8 years, with hypertrophic and pigmentary changes in the skin and some angiomatous patches, atrophy of muscles, and atrophy or rarefaction of bone as indicated by repeated fractures and verified by skiagraphs. 2. A case of Cystic Disease of Bone (upper end of humerus) in a boy aged 14 years, treated by free opening up and implantation of bone. The patient was shown, with skiagrams before and after operation. 3. Gall-bladders removed in conditions of Cholelithiasis (four recent cases), with microscopic preparations. 4. (With Professor J. H. Teacher.) The Spinal Column of a boy aged 6 years, the seat of multiple tuberculous foci (upper cervical, dorsal, and lumbo-sacral).—Dr. A. Louise McIlroy made a short communication on a case of Chorion-epithelioma and one of Myomata complicated with pregnancy, and showed coloured photographs. In the first case, that of a patient aged 30, a diagnosis of incomplete abortion was made, and on microscopic examination of the curettings Professor Teacher found chorion-epitheliomatous tissue. Panhysterectomy was performed with complete recovery. In the second case the patient, aged 30, had been married six years and was sterile. Dysmenorrhœa and menorrhagia had been present. On the onset of uterine hæmorrhage the patient was examined under an anæsthetic, and myomata with pregnancy were diagnosed. Supravaginal hysterectomy was performed, and on section of the specimen a four and a half months fœtus was seen. In the wall of the uterus were several myomata, one of which showed marked degenerative changes. The patient's health was markedly improved after operation.—Dr. J. W. McNee read a paper on Recent Work on the Etiology of Gall-stones. The views of the etiology of gall-stones which had been held for the last 20 years were those of Naunyn, who recognised two factors in the formation of all varieties of gall-stones—(1) stasis of the bile in the gall-bladder; and (2) inflammatory catarrh of the gall-bladder mucosa induced by micro-organisms. The work of Aschoff and his pupils, now accepted practically throughout Germany, had shown that three factors operated: 1. Stasis, by permitting the separating out of the constituents of gall-stones from the bile; the importance of this factor was seen in pregnancy and in general adiposity, two conditions in which the proclivity to gall-stone formation was well recognised. 2. Altered concentration of the constituents of the bile—i.e., increase of the stone-forming elements. It was now known that the amount of the cholesterin in the blood serum was above the normal in pregnancy, in diabetes mellitus, and other conditions of disease, and below the normal in tuberculosis, tumours, and acute fevers, except enteric; while the speaker, using the Windaus digitonin method in Aschoff's laboratory, had found in four cases of pregnancy amounts of cholesterin from 4 to 5 times the normal, and in a case of acute phthisis a month or two after delivery an amount eight times the normal. 3. Infection by micro-organisms, most commonly of the coli-typhoid group, which set up a

cholecystitis, with inflammatory exudate and increased mucous secretion from the gall-bladder walls and consequent addition of excess of lime salts to the bile. About 20 per cent. of all stones had, at first at least, no inflammatory factor in their origin. These were the pure cholesterin stones, crystalline in structure, occurring singly, often without symptoms, and due to the combined effect of stasis and excess of cholesterin in the bile. Infection of a gall-bladder containing such a stone led to an excess of lime salts in the bile and to the coating of the stone with a mantle of chalk and cholesterin deposited in concentric layers, and so to the formation of a "combination stone." Few cases of pure cholesterin stones escaped this inflammatory change, while 20 per cent. of all cases of inflammatory cholelithiasis passed through a non-inflammatory period. The commonest type of stone was the cholesterin-chalk or cholesterin-chalk-pigment stone, non-crystalline, of concentric formation, always multiple, often extraordinarily numerous, and originating in a gall-bladder which had become inflamed, and which might or might not have previously contained a stone of aseptic origin. Any truly rational treatment of gall-stones must not only aim at removal of the stones present, but must combat the stasis in the gall-bladder by adequate drainage, promote healing of the inflamed and often ulcerated gall-bladder wall, and take cognisance of the conditions which tended to increase the excretion of cholesterin in the bile.

WIGAN MEDICAL SOCIETY.—A meeting of this society was held on Nov. 25th, Dr. J. T. Shirlaw, the President, being in the chair.—Dr. George Jessel, tuberculosis officer for Wigan and area 14 of the county of Lancashire, read a paper on the Tuberculosis Dispensary. He said that on the next day there was to be opened in Wigan the first tuberculosis dispensary of its kind in the kingdom. It was to be under the joint authority of the county borough of Wigan and of the county of Lancashire, and was of an experimental nature, and would be watched with interest by other bodies. He pointed out the great and urgent necessity for a strenuous fight against tuberculosis, quoting the phthisis death-rate for England and Wales and the county borough. The dispensary idea was not new, neither was it called into being by the Insurance Act. The honour of being first in the land was due to Sir Robert Philip, of Edinburgh, and most of the later dispensaries had been largely modelled on this. The ideal tuberculosis dispensary should fulfil many duties. 1. It should be a centre for diagnosis. Dr. Jessel here emphasised the difficulty and desirability of early diagnosis. 2. It should act as an observation centre, bringing the tuberculosis officer in touch with contacts, suspects, &c. 3. A treatment centre in touch with all the various agencies for treatment. In this connexion he mentioned observation beds, which might be set up in various centres for the more careful observation of doubtful cases, sanatorial treatment, domiciliary treatment, isolation treatment for advanced cases so as to remove danger centres, surgical treatment for the various forms of surgical tuberculosis, after-treatment of cases returned from sanatoriums, &c. 4. A centre for research work. This must form an important part of the duty of a dispensary. 5. An information bureau and educational centre, from which would be distributed information regarding tuberculosis, its causes, mode of onset, &c., as only by educating people in this way could we obtain the intelligent coöperation of the people themselves, without which a great many early cases would be missed. 6. A centre for the after-care of cases recovered and recovering. There would eventually be in connexion with the ideal dispensary a farm colony or work colony, where the patients would work under proper care and supervision. Dr. Jessel next spoke of the ideal tuberculosis officer, who he thought should spend some time as a general practitioner. He then detailed his scheme to enable the dispensary and its officer to keep in touch with (1) the patient; (2) the medical officer of health, whose cordial support and coöperation were vital to the scheme; (3) the Insurance Committee; and (4) the panel doctors. He concluded by showing specimen cards to medical men in attendance, weight registers, simple temperature cards, &c., which he proposed to use in connexion with this work.—Several members present discussed Dr. Jessel's paper, and a hearty vote of thanks was passed to him for his address.—The biennial dinner of the society was held on Dec. 11th.

MANCHESTER MEDICAL SOCIETY.—A meeting of this society was held on Dec. 3rd.—Dr. T. Graham Brown read a paper on Walking, in which he pointed out that animal progression was interesting not only from the standpoint of mechanics, but also from that of the central nervous control of the act, many of the problems of the physiology of the spinal cord being centred round the phenomenon. The dynamics of walking were considered and illustrated in the case of flight in the bird, and terrestrial progression in the case of the quadruped and in man. The characteristic rhythmic alternation of movement—e.g., flexion and extension in man—was emphasised. The physiology of the act was considered. It is not voluntary, since progression may be evoked after the removal of the cerebral control, as in Freusberg's "mark-time" reflex. Is it reflex? The problem presented centres round the question of the causation of the rhythmic alternation of movement. The methods of investigation were then described and the following theories advanced: (*a*) That the rhythmic alternation of movement is produced reflexly by the self-generated skin stimuli produced during the act by the pressure of the foot on the ground, &c. Objections to this view were discussed. (*b*) That the alternation is produced by the rhythmic inhibition of a maintained reflex; and that this rhythmic inhibition is self-generated by the movements of the active muscles stimulating the sensory organs in the muscles themselves during the act. (*c*) Experiments show that progression may take place after all the sensory nerves of the limbs have been destroyed. This shows that the rhythmic phenomenon is conditioned in the centres themselves and is not peripherally self-maintained. They also indicate that the rhythm results during a balance of equal and opposite activities in the centres. Therefore the theory has been propounded that the rhythm is conditioned during the equal and opposite activation of antagonistic spinal centres for the muscles of the limbs. Is this equal and opposite activation reflex—that is, caused by peripheral afferent stimuli? Against this is the fact that the act of progression may occur at a depth of narcosis at which the peripherally generated reflexes are abolished. The theory suggested by Dr. Brown is that the rhythm of progression is conditioned during an equal and opposite activation of the antagonistic spinal centres; that the rhythm is not a property of the nerve cell discharge as such; that it is fundamentally conditioned by the arrangement of the interconnexions of antagonistic nerve cells; that the equal and opposite activation of the antagonistic nerve cells may be in its turn conditioned by some such state as that produced by the "blood stimulus" in the respiratory centre; and that all the other factors emphasised in other theories are subsidiary in the normal act, helping and controlling it, but not fundamentally conditioning it.

BRISTOL HEALTH COMMITTEE.—At a recent meeting Mr. Colston Wintle was once more elected chairman of this committee, which has met 187 times, either in full committee or in subcommittee, during the past 12 months. Mr. Wintle gave a *résumé* of the year's work.

HOSPITAL ALMONERS' COUNCIL.—The annual meeting of the council was held on Dec. 10th at the Central Buildings, Westminster, Sir Malcolm Morris, Vice-President, in the chair. The secretary stated that 15 candidates for almoners' posts were in course of training. He referred to the appointment of an in-patient almoner at Great Ormond-street Hospital for Sick Children, and drew attention to the numerous appointments of assistant almoners as evidence of appreciation of the system on the part of those hospitals which had adopted it. In moving the adoption of the annual report Sir Malcolm Morris said that, after 48 years' experience of hospitals, he was convinced that there was no more important work being done in London than that of the almoners in supplementing the medical treatment provided by the hospitals. He pointed out that, unless the work of hospitals is linked up with that of charities outside their walls, patients cannot be enabled to benefit fully by the treatment they receive. He referred to the necessity of careful training for the work as provided by the council. He was of opinion that the public know far too little of the movement, and urging that it should be brought into much greater prominence, added that he would be glad to assist in this direction.

Reviews and Notices of Books.

Studies in Cancer and Allied Subjects: The Study of Experimental Cancer.

A Review by WILLIAM H. WOGLOM, M.D., Assistant Professor, Columbia University. Conducted under the George Crocker Special Research Fund at Columbia University. Vol. I. New York: Columbia University Press. 1913. Pp. 288. Price $5.

VOLUME II., dealing with the Pathology of Cancer, conducted under the Crocker Research Fund, was reviewed in THE LANCET of April 26th, 1913. In Volume I., which has been recently issued, we have a summary of the more recent experimental investigations of cancer. No attempt is made to give a critical *précis* at this time, since much of the work is so new, and ideas regarding the disease are so chaotic, says Dr. Woglom, that evaluation is well-nigh impossible. The author, however, ends on a more optimistic note, for, he says, "newer conceptions of malignant growth encourage the hope that at some time, far in the future though it may be, the dream of effectual interference with incessantly proliferating cells will become an actuality." Chemical studies have been omitted because a number of excellent reviews are in existence, and also because investigation in this field has thus far yielded but little of practical importance, while the bacteriological side has been neglected, because its discussion would amount to little more than a list of micro-organisms.

Having delimited his theme the author deals in succession with the following: A brief historical review; attempts to produce tumours; the earlier observations on the transmissibility of cancer; the transplanted tumour resistance; hypersusceptibility; the spontaneous tumour; tumours of a nature still undecided; and therapeutics.

From the earliest days in medicine cancer has been recognized to some extent as an incurable and fatal disease. Though the literature of experimental cancer seems to be a tangle of conflicting statements, there are a few threads which the author has endeavoured to disentangle and follow through. The mass of detail with appropriate references cited by Dr. Woglom is so vast that we must content ourselves with a brief summary of some of the main findings which may be regarded, he thinks, as "probably reliable," having received the support of a majority of those engaged in cancer research. It is to be remembered that there are mice and mice, and that what may happen in two groups of ten mice may not, and often does not, occur in a third series. The greatest amount of attention has been bestowed on mouse cancer, and the author expresses the view that there can be scarcely any doubt that the neoplasms of the mouse are entirely comparable to those of man. Malignant growths have been found in all classes of animals from fishes to mammals with one exception—viz., that no certain instance has yet been reported among the reptiles. There is some evidence to show that in mice there is an hereditary influence at work making mice of recent cancerous ancestry more prone to develop cancer than those in which the taint is more remote. Almost any spontaneous new growth in mice can be transplanted into other mice, and the propagation generally becomes easier in succeeding generations. Moreover, cancer is more readily transplantable into the animal in which it arose spontaneously than into any other. In addition, an animal cannot be immunised in any manner yet at command against the inoculation of its own primary tumour. These and other observations militate strongly against any parasitic theory of cancer. After a portion of a tumour is introduced into another host, the proliferation of the tumour is an example, not of an infection, but of a transplantation. The parenchymal cells of the resulting growth are derived, not from the elements of the new host, but from those of the transferred graft. These transplanted cells are nourished and supported by connective tissue and blood-vessels of the new organism.

A fact of prime importance in relation to all so-called cures of cancer is this, that propagable tumours are subject to fluctuations in growth energy. Indeed, they may grow progressively or disappear spontaneously. Under most favourable conditions the proliferative power of the cancer cell falls far short of that possessed by bacteria, and perhaps also of the cells of the developing embryo. Mice in which tumours have undergone partial or complete absorption are refractory to subsequent transplantation, either of the same or another growth. Immunity once induced cannot be transferred passively to other animals. There is a certain amount of evidence to show that natural resistance may be the outcome of hereditary transmission, but none to show that acquired immunity can be transferred. This brief summary, condensed from that of the author, postulates the present position of the question. Indeed, Dr. Woglom, after his most comprehensive survey and mature deliberation on the vast amount of detail he has passed in review, says: "It must be frankly confessed that so far, at least, the study of cancer, instead of affording an understanding of the nature of the disease, has but opened up new problems which were formerly not even conceived."

We express our grateful thanks to the author for his luminous summary of the present position of the question of experimental cancer.

Vaccine and Serum Therapy, including a Study of Infections, Theories of Immunity, Specific Diagnosis, and Chemotherapy.

By EDWIN HENRY SCHORER, B.S., M.D., Dr.P.H., Assistant Rockefeller Institute for Medical Research, New York City, &c. Second revised edition. London: Henry Kimpton; Glasgow: Alexander Stenhouse. 1913. Pp. 300. Price 12*s.* 6*d.* net.

THIS book proceeds on the usual lines of text-books on its subject. The first chapter deals with the general features of infectious disease, and the second with the different theories which have been put forward to explain the phenomena of immunity. The third chapter is devoted to specific diagnosis, including identification of organisms, agglutination, fixation of complement, opsonic determinations, and so forth, some empirical tests such as the cobra venom reaction being also mentioned, and some account given of inclusion bodies and filtrable viruses. The fourth chapter deals with specific methods of treatment by means of vaccines and serums, some account being given of the mode of preparing and standardising the latter and of the phenomena of serum disease. A few pages also are devoted to the use of leucocytic extract and normal serum. The fifth, last, and longest chapter contains an account of the practical application of the methods already described to the individual

infections, while an appendix is added on diagnosis, treatment, and prophylaxis of syphilis and malaria. There are a few illustrations, chiefly of temperature charts and apparatus.

The treatment of the subject throughout is adequate and the material is brought well up to date. In places the style seems unduly condensed, and we could have spared the brief accounts of the clinical features of some of the affections, which are not of much value, in order to have more detail on essential points. Thus the statement that "the only harm that can be done by careful tuberculin therapy exists when there are complicating diseases. Of these there are few of importance"—with no indication as to which are important—is not illuminating. Again, the assertion that all forms of tuberculin "produce good results in all types and forms of tuberculosis" is a wild overstatement, due probably merely to condensed or careless writing. The author has seen no marked good effects from the use of phylacogens. The author should make up his mind whether he wishes to call the organism of syphilis treponema or spirochæta and adhere throughout to one or other term. By the way, the phrase "two treponema" cannot be correct, though it may be a matter of individual preference whether the plural used is the English treponemas or the Græcolatin treponemata. It is fervently to be hoped that Noguchi's atrocities of nomenclature here adopted, sp. microdentium and macrodentium, will not survive.

The Poisonous Terrestrial Snakes of our British Indian Dominions (including Ceylon) and How to Recognise Them, with Symptoms of Snake Poisoning and Treatment.

By Major F. WALL, I.M.S., C.M.Z.S. Third edition. Bombay: Natural History Society. 1913. Pp. 149. Price Rs.3.

THE practical nature of the author's aim, partly indicated in the title, accounts for the neglect of the marine snakes in the volume before us. While Major Wall has not absolutely ignored the varied forms which frequent the seas that wash the shores of India and Ceylon, there is enough to be said about the numerous poisonous terrestrial snakes to justify any curtailment at the expense of their less important marine allies. The author enumerates 40 species of vipers and venomous colubrines as inhabitants of the political regions defined in his title, and to each species devotes a sufficient technical description and general notes upon appearance and habits. It should be easy enough for anyone of intelligence to identify a given species after mastering the clear directions devoted in an earlier chapter to the principal characters of scales and so forth, used in the differentiation of species from species and of genus from genus. These directions are accompanied by plain outline drawings of the head and tail of most of the marked types, which almost render a prolonged attention to the text unnecessary, so descriptive are they to the eye.

The zoological part of the book occupies 66 pages, the rest being devoted to snake poisoning and the symptoms and remedies thereof. In a condensed practical treatise of this sort disquisitions upon zoological matters of wider interest must not be looked for. The author has, however, devoted quite as much care to the preparation of the purely scientific side as to the more purely practical of his handbook. His statements of fact are trustworthy, and he has not ignored contemporary literature. The classification used is that crystallised by Dr. Boulenger into his British Museum catalogue of snakes, and only external characters are tabulated by Major Wall. For practical purposes this can still be done; but it is a little difficult to be sure whether it will be possible in the case of new forms which may turn up.

We are not at all surprised that this excellent manual has reached a third edition. Seeing how little in the way of records of new snakes has occurred since 1908, when the manual was first published, and having regard also to the energetic study on the part of herpetologists of many countries, it is not perhaps likely that the list displayed by Major Wall will be materially increased. This reflection gives us additional confidence in recommending the work.

Compendium of Regional Diagnosis in Affections of the Brain and Spinal Cord.

By ROBERT BING, Privat-docent for Neurology in the University of Basle. Translated by F. S. ARNOLD, M.B., B.Ch. Oxon. Second edition, revised and enlarged, with 73 illustrations. London: Rebman. 1913. Pp. 222. Price 10*s.* 6*d.* net.

WE have already favourably reviewed both the German and the English editions of this book. We now extend a welcome to the second English edition. A considerable number of emendations and additions have been found necessary; there is new material in the sections on the motor cortex, extracerebellar tumours, aphasia, apraxia, the pituitary and the pineal glands, &c. Some new illustrations are supplied, and a few of the old have been improved. In this new edition we consider that the needs of the student and the practitioner who is not a professed neurologist have been catered for in generous fashion.

Zur Psychopathologie des Alltagslebens.

(Über Vergessen, Versprechen, Vergreifen, Aberglaube und Irrtum.) By Professor Dr. SIGMUND FREUD, Vienna. Fourth, enlarged edition. Berlin: S. Karger. 1913. Pp. 198. Price 5 marks.

Professor Freud, as is well known to all workers in modern psychology, sees in everyday life innumerable instances of passion lurking behind trifling occurrences and incidents, instances of concealed or repressed mental processes behind the slips of the tongue, the mistakes, the forgetfulness, the misconceptions, to which all are more or less subject. That behind some apparently accidental and paltry occurrences repressed motives are at work is a truism which any introspective individual may readily discover for himself. Not infrequently the analysis of such incidents is psychologically very instructive, and the debt which psychology owes to the author is augmented by the critical and unflinching dissection of the human mind revealed in the book under consideration

Nevertheless, after re-reading this fourth edition, it is the duty of the critic to call attention to the author's tendency to overrate the significance of much of his material. The "will to believe" itself requires vigorous repression if we are to be saved from some of the exuberant interpretations which he would offer us. Thus we are told that the common experience of moving from one side to the other in front of an individual on the sidewalk, who makes the same movements so that progression is for the moment at a standstill, "sexuelle Absichten unter der Maske der Ungeschicklichkeit

verfolgt." When Professor Freud "accidentally" knocks a little marble statuette off his table there is a hidden meaning in the incident; the examination of such instances has convinced him that it is never the result of an accident. If, however, a domestic does the same, "so wird man an eine psychologische Erklärung hierfür gewiss nicht in erster Linie denken." Why "gewiss nicht"? These, and sundry other instances that might be quoted from the book, put a strain on the reader's willingness to endeavour to understand the author's argument. Much of what is offered by Professor Freud as explanatory is merely conjectural if not purely fantastic. The saving grace of common sense might, in some cases at least, find a simpler interpretation than that imagined by the ingenious subtlety of which Professor Freud is a master.

Handbuch der Vergleichenden Physiologie.

Herausgegeben von HANS WINTERSTEIN. Lieferung 37. Band III. *Physiologie des Energiewechsels.* Erste Hälfte. Jena: Gustav Fischer. 1913. Pp. 1133–1294. Price 5 marks.

Professor Biedermann brings to a close his long, laborious, and elaborate account of the physiology of the supporting and skeletal substances of the body with a fascinating account of the architecture of bone. Histology and architecture are considered, especially from the functional point of view, with a thoroughness and wealth of detail which leave nothing to be desired. The chemistry and development of bone conclude the article.

R. F. Fuchs, of Breslau, deals with the colour changes and the chromatic cutaneous functions of animals, a subject which attracted the attention of Aristotle himself. Beginning with the invertebrates, the chromatophores in the lower forms are first considered, then those of the mollusca, excluding the cephalopoda. To the colour changes and chromatophores of the cephalopoda alone nearly 100 pages, well illustrated, are given. This is by far the most comprehensive review that we know of on a fascinating subject. In the final pages the author begins his exposition of the colour changes in arthropoda.

LIBRARY TABLE.

The Principles of Evolution. By JOSEPH MCCABE London and Glasgow: Collins, Sons, and Co., Limited 1913. Pp. 264. Price 1s. net.—Mr. Joseph McCabe has a remarkable gift for dealing with a large subject in a small space. He gives in this little book a really good all-round description of the many various things connoted by the word "evolution." He explains what it is, and what effect its doctrines have had, not only in every conceivable field of study, but also on the thoughts, lives, and social behaviour of us all. He has to a great extent returned to first principles in narrating the facts and in dealing with the natural agencies of evolution, its range, and the various particular problems which at present engage attention. The chapter on natural selection is a clear exposition of two words of constant occurrence in newspapers and conversation, and very frequently misapplied. Mr. McCabe is the author of books describing the heavens and the earth on evolutionary lines, and to some extent this volume of the National Library is used as a supplement to previous writings. We recommend the book cordially. It is extraordinarily comprehensive, considering its size, and it is properly dogmatic—by which we mean to say that the need is recognised, if a book is to be small while its subject is almost indefinitely large, of saying certain things in a downright way without marshalling all the evidence for or against their truth.

The Practical Medicine Series. Vol. IV.: *Gynecology.* Edited by E. C. DUDLEY, A.M., M.D., Professor of Gynæcology, Northwestern University Medical School; and H. M. STOWE, M.D., Associate in Gynæcology, Northwestern University Medical School. Series 1913. Chicago: The Year Book Publishers. Pp. 230. Price 1.35 dollars.—This is one of a series of ten volumes issued at about monthly intervals and covering the entire field of medicine and surgery. They are published primarily for the general practitioner, and give a very complete *résumé* of the work done in the particular branch of medicine concerned. After chapters devoted to general principles, such as anæsthesia and operative technique and kindred subjects, the various infections and allied disorders of the genital organs are considered. In the same way a general survey is given of all the most recent papers in connexion with malformations and tumours, traumatisms, displacements and disorders of menstruation, and sterility. The value of the book is enhanced by the notes and annotations contributed by the editors, and the whole contains a great deal of valuable and interesting information on the recent progress of gynæcology.

Alimentary Toxæmia: Its Sources, Consequences, and Treatment. A Discussion opened by W. HALE WHITE, M.D., F. W. ANDREWES, M.D., VAUGHAN HARLEY, M.D., ROBERT SAUNDBY, M.D., Sir W. ARBUTHNOT LANE, M.S., and J. F. COLYER, M.R.C.S., L.D.S. London, New York, Calcutta, and Bombay: Longmans, Green, and Co. 1913. Pp. 380. Price, cloth, 4*s.* 6*d.* net.—The discussion on alimentary toxæmia at a series of special meetings of Fellows of the Royal Society of Medicine between March 10th and May 7th, 1913, was so fully reported in our columns at the time, Dr. Hale White's opening and closing addresses, together with the papers of Professor W. E. Dixon and Sir James Goodhart, being published in full, and an editorial review appended to the whole, that it is unnecessary here to say more than this reprint from the Proceedings of the Royal Society of Medicine is almost a textbook on the subject. The index will prove of particular service to those in search of information on this increasingly important topic.

Obstetric Aphorisms. For the Use of Students commencing Midwifery Practice. Eleventh edition. By JOSEPH GRIFFITHS SWAYNE, M.D. Revised and edited by WALTER CARLESS SWAYNE, M.D., B.S. Lond., M.D., Ch.B. Bristol. London: J. and A. Churchill. 1913. Pp. 216. Price 3*s.* 6*d.* net.—The editor, in response to many requests from friends, has come to the conclusion that there is still a place which a new edition of this work can fill with advantage, and therefore has revised and brought it up to date. The original form of the work has been retained as far as possible, but Dr. W. C. Swayne has endeavoured in his revision to retain the results of the immense practical experience and sound judgment of the author, even at the expense of modernity. This little book has no doubt proved useful to many hundreds of students since its first appearance some 20 years ago. In its modern dress it should be as helpful to present generations of students as it was to their predecessors.

MISCELLANEOUS VOLUMES.

Two books on medical missions are before us. In *Thirty Years in Kashmir* (London: Edward Arnold. 1913. Pp. 316. Price 12*s.* 6*d.* net.) Mr. ARTHUR NEVE, F.R.C.S. Edin., who, with his brother Ernest, is a surgeon to the Kashmir Mission Hospital at Srinagar, founded under the auspices of the Church Missionary Society, gives us an account of his life and experiences. Mr. Arthur Neve went to Kashmir in 1882 to replace Dr. Edmund Downes, retired for ill health. Medical matters, however, form but a very slight portion of the book before us, which is chiefly concerned with journeys in the interior of Kashmir and the surrounding territories of Little Tibet (i.e., Baltistan), Gilgit, Chitral, and the Karakorum range of mountains. The book is somewhat sketchy, though it would probably be difficult for anyone who had not a vastly picturesque pen to convey to an ordinary reader the emotions called up by the awe-inspiring scenery of vast groups of mountains. "Surely the gods live here," said Kim, when he drew near to Kedarnath, one of the giants of the range, and the silences, the spaces, and the majesty of the land evidently affected Mr. Neve, although he gives but superficial descriptions. When he was in Gilgit Mr. Neve paid a visit to Captain (now Major) McCarrison's hospital, in which he was naturally deeply interested, and he rightly pays a warm tribute to Captain McCarrison's work on goitre, many reports of which have appeared in our columns. Concerning it Mr. Neve says: "Work such as his ranks, in my mind, as medical mission work, and must be of very real value in winning the liking and respect of the people for their European rulers." Mr. Neve modestly says next to nothing of his own work, and when on p. 242 he gives an account of three cataract operations performed under great difficulties in Little Tibet he omits to tell us the ultimate results; however, as is well known, the results of cataract operations by a skilled operator upon almost any native of India and the provinces to the north of it are extraordinarily good despite the want of skilled after-treatment. The book, when it comes to a second edition, would be much improved by a good map, for the sketch map appended is but of little use. Even with its deficiencies the work is worth reading as an introduction to a territory unknown to most of us.——*The Appeal of Medical Missions*, by R. FLETCHER MOORSHEAD, M.B. Durh., F.R.C.S. Eng. (London and Edinburgh: Oliphant, Anderson, and Ferrier. 1913. Pp. 224. Price 2*s.* 6*d.*), is an earnest appeal for the institution and support of medical missions, backed by many illustrations of the value of the work carried on by existing missions. To those who look back to primitive Christianity as a model for all time medical missions must appeal with special force, for the first missionaries on record—namely, St. Paul and St. Barnabas—healed the sick and afflicted at Lystra and were thereupon considered to be gods in the likeness of men. Not the least valuable portion of Dr. Moorshead's book is the chapter dealing with the Failure of Medical Missions, in connexion with which he wisely says: "Thoroughness and efficiency should characterise every aspect of the work. Apart from these qualities, medical missions—we say it advisedly—will not pay." This chapter on Failure is naturally followed by one dealing with the Training of a Medical Missionary, which contains much sound advice. It is no part of our duty to discuss the theological side of the training, but we can at least say that we entirely approve of one canon laid down by Dr. Moorshead—namely, that the medical missionary should have "an intelligent acquaintance with the religious beliefs of the people amongst whom he is to labour." Christian missions are unfortunately carried on by very varying divisions of Christianity and are accordingly hindered by many unhappy divisions, but as regards the medical and scientific side of the matter would-be missionaries to whatever division of the Church or to whatever sect they belong will find profit in reading Dr. Moorshead's book.——The Red Cross organisation may be described as in a sense almost a medical mission—at any rate, of humanity. In *The British Red Cross in the Balkans* (London, New York, Toronto, and Melbourne: Cassell and Co. 1913. Pp. 68, with 160 illustrations. Price 1*s.* net) we have some indication of the way in which the £40,000 subscribed by the public were spent in the humane work, and of the difficulties of medical service in modern warfare. The pictures are prefaced by a short introduction, and a frontispiece illustrates the presentation of medals to the Balkan war nurses of the British Red Cross Society by Her Majesty Queen Alexandra.

JOURNALS AND MAGAZINES.

The Philippine Journal of Tropical Medicine, Section B., Nos. 3 and 4, 1913.—The first of these numbers opens with an interesting account of the intestinal parasites encountered in 500 consecutive necropsies, with reports of cases by Dr. B. C. Crowell and Dr. R. W. Hammach, respectively associate professor and instructor in pathology and bacteriology in the University of the Philippines. These observers found ascaris lumbricoides in 41·2 per cent. of the cases, trichuris trichiura in 34·4 per cent., and hookworm in 16·6 per cent. One case of ascaris in the appendix was found, and in two clinical cases of appendicitis trichuris was discovered in the appendix.—Captain Edward B. Vedder, of the United States Army Medical Corps, and Dr. Robert R. Williams contribute a description of some experiments concerning the beri-beri preventing substances, or vitamines, contained in rice polishings. They confirm the observations of C. Funk by isolating a crystalline base from an extract of the polishings. They also obtained confirmatory evidence of the hypothesis they had formerly advanced—namely, that wet beri-beri and dry beri-beri are two distinct conditions, each being caused by the deficiency of a separate vitamine.—Mr. M. Bruin Mitzmain, of the Veterinary Division of the Bureau of Agriculture, Manila, writes upon the biology of the Tabanus striatus fabricus, the horse-fly of the Philippines, his paper being illustrated with a series of descriptive plates; and the same contributor furnishes also an article on the mechanical transmission of surra by this fly. It appears that this is the first time that the transmission of surra by this species of tabanus has been recorded.—Dr. P. K. Gilman, of the General Hospital, Manila, gives an article on axillary teratoma, with illustrations.—Mr. W. H. Boynton supplies a note on "strangles," or horse distemper, in the Philippines, and arrives at the conclusion that the affection is widespread among the horses of the islands.—Lastly, Dr. Oscar Teague, supplementing his previous work, gives a further note upon the influence of atmospheric temperature upon the spread of pneumonic plague.

The second of the two numbers is wholly filled by an article entitled, "An Experimental Study of Entamœbic Dysentery," by Dr. Edward Linwood Walker, in collaboration with Dr. Andrew Watson Sellars, both of the Biological Laboratory, Bureau of Science, Manila. These investigations were undertaken in order to determine experimentally the etiological relationship of different species of amœbic organisms to endemic tropical dysentery, and included 60 feeding experiments with the different species of amœba and entamœba which have at one or another time been implicated in the production of the disease. It is claimed by the authors that the experiments have been of a kind never hitherto performed, and that as a result information of the greatest value for the diagnosis, treatment, and prophylaxis of entamœbic dysentery has been obtained.

Biometrika (Vol. IX., Parts III. and IV. October, 1913. Issued Nov. 8th, 1913). Edited by KARL PEARSON. Cambridge University Press. Price 20*s.* net.—We are amazed at the wealth of painstaking research that is enshrined in each issue of *Biometrika*. The issues before us contain an article on Anomalies of Pigmentation among Natives of Nyasaland, by Hugh Stannus Stannus, which is described as a contribution to the study of albinism. W. R. Macdonell follows with an interesting paper on the Expectation of Life in Ancient Rome and her Provinces, a note on which appears elsewhere. George McMullan and Professor Karl Pearson have a second paper on the Inheritance of the Deformity Known as Split-foot or Lobster-claw. Kathleen V. Ryley and Julia Bell, with the assistance of Professor Pearson, give a study of the Nasal Bridge in the Anthropoid Apes and its Relationship to the Nasal Bridge in Man. J. Arthur Harris discusses the Calculations of Intra-class and Inter-class Coefficients of Correlation from Class Movements when the Number of Possible Combinations is Large. M. Greenwood jun., and J. W. Brown, from the Statistical Laboratory of the Lister Institute, publish a second study of the Weight, Variability, and Correlation of the Human

Viscera. D. H. de Souza describes a series of painstaking investigations regarding the Measurements of the Pelvis with Special Reference to Obstetric Prediction, and arrives at certain formulæ for finding the obstetric conjugate and the transverse diameters in the living subject.

New Inventions.

AN IMPROVED URINE SPECIMEN GLASS.

WE have introduced an improved specimen glass which will be found useful in hospitals and by insurance examiners and others who frequently examine urine. The advantages are: (*a*) a small calibre, so that about an ounce of fluid will freely float an ordinary urinometer; (*b*) a blunt conical bottom to enable sediment to be collected, and for ease of cleaning; (*c*) a funnel-shaped top to hold filter paper, thus obviating the use of a funnel; and (*d*) the wide and level top allows the glass to safely stand inverted for drainage.

The glasses are made and supplied by Messrs. Down Bros., St. Thomas's-street, London, S.E.

ARTHUR H. RIDEAL, M.D. Aberd.
W. OLIVER BEDDARD, M.R.C.S. Eng., L.R.C.P. Lond.

A NEW ETHER DROP BOTTLE.

THE general appearance and method of using this bottle can be gathered from the illustration. Its chief points of utility are, firstly, that it affords a restful position for the administrator, the angle at which the bottle is made enabling him to keep his head and arm at rest during the operation, any increase or decrease in flow being regulated by a slight movement one way or the other of the rudder which is worked by the first and second fingers; and secondly, that the anæsthetic can be commenced very gradually, at any pace from ten drops to the minute upwards. I find this gradual induction very useful in the case of infants and children, as it enables the respiratory tract to accustom itself to the ether by degrees, and consequently there is no coughing or holding of breath. Another small point is that there is little or no waste of anæsthetic as there must be when it is poured on in larger quantities. I have used this bottle for four years at the Evelina Hospital with most satisfactory results.

The makers are Messrs. Montague of New Bond-street, London, W.

DOUGLAS JACKSON, M.R.C.S. Eng., L.R.C.P. Lond.
Harley-street, W.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

AN ordinary meeting of the Council was held on Dec. 11th, Sir RICKMAN GODLEE, the President, being in the chair.

The PRESIDENT reported his attendance at Chicago on Nov. 13th, on the occasion of the First Annual Congregation of the American College of Surgeons, and he also stated that he had visited the University of Toronto, and had received the degree of LL.D.

The SECRETARY reported the death on Dec. 7th, at the age of 83, of Mr. Sydney Jones, past member of the Council. A vote of condolence was passed, expressing the sympathy of the Council with the family and their appreciation of the late Fellow's services to the College.

A report was read from the Board of Examiners in Anatomy and Physiology for the Fellowship, stating that at the examination concluding on Nov. 14th 129 candidates were examined, of whom 44 were approved and 85 rejected.

It was resolved to grant diplomas of Fellowship to 28 successful candidates.

It was resolved to grant diplomas of the Licence in Dental Surgery to 54 successful candidates.

Mr. W. G. Spencer was re-elected a member of the Court of Examiners.

A report from the committee on the annual report of the Council was received and approved. It contained the following statements: "With regard to resolutions Nos. 1 and 2 the committee do not think that the Council are called upon to reconsider their decisions respecting the subjects to which they refer. As regards resolution No. 3 the committee are of opinion that the satisfactory financial position of the College at the present time is sufficiently evident to any Fellow or Member who studies the published accounts."

A letter was read from Lord Sydenham to the President stating that "the Royal Commission on Venereal Diseases are desirous of obtaining the coöperation of the Royal College of Surgeons in securing the best evidence available on the questions referred to the Commission for their investigation, and they would welcome any suggestions from you as to suitable witnesses to be called, especially respecting the more indirect effects of syphilis in producing organic disease and upon the subject of remedial measures." In reply the Council nominated Mr. D'Arcy Power, surgeon to St. Bartholomew's Hospital, Mr. F. Richardson Cross, president of the Ophthalmological Society of the United Kingdom, and Mr. S. G. Shattock, pathological curator of the Royal College of Surgeons of England, to give evidence on these matters.

A letter was read from Sir Henry Morris, reporting the proceedings of the General Medical Council at its late session. The best thanks of the Council were given to Sir Henry Morris for representing the College on that Council.

The JUNIOR VICE-PRESIDENT reported the delivery of the Bradshaw Lecture on Gunshot Injuries of the Arteries by Mr. G. H. Makins, C.B., on Dec. 5th. The best thanks of the Council were given to Mr. Makins for his lecture and he was requested to publish it.

The College, including the museum and library, will be closed from the evening of Wednesday, Dec. 24th, until the following Monday morning.

A MUNIFICENT THANKOFFERING.—To mark the coming of age of their elder son, Lord Titchfield, and to celebrate their silver wedding, the Duke and Duchess of Portland have offered to Mansfield Hospital a sum of about £5000 to liquidate the debt on the King Edward memorial wing of the institution.

BRISTOL GENERAL HOSPITAL.—At two recent functions, the nurses' prize-giving and the annual meeting of the ladies' needlework guild, allusions were made in terms of deep satisfaction to the recent election of Mr. George Wills to the presidency of the hospital. At the latter meeting it was stated that the guild had contributed over 4000 articles of clothing, bed-linen, &c., as well as a sum of £112. Both of these figures represent the highest totals yet attained.

THE LANCET.

LONDON: SATURDAY, DECEMBER 20, 1913.

The University of London: The Question of Site.

Mr. J. A. PEASE, President of the Board of Education, on the occasion of the Founders' Day Celebration at Birkbeck College on Dec. 10th, made a statement, in continuation of previous pronouncements,[1] on the subject of the future of university education in London which was full of importance for a great number of our readers. For questions of medical education in the metropolis, the centre for the administration of the work of the Royal medical corporations, and the seat of a famous group of hospitals and of a university owning distinguished medical graduates all over the world, have definite interest for the majority of our profession. Mr. PEASE placed in the front of his observations the question of the formation of a university quarter, and it is perfectly clear that much of the immediate future of the University of London may depend upon the selection of a site for any new buildings that have at once to be erected. A distinct recommendation of the recent Royal Commission, as well as the general spirit of the report of that body, makes the acquisition of a site whereon a university quarter can be properly developed a necessity, and it will be necessary in choosing that site to estimate carefully, not only what is wanted at once, but what will be wanted when, under revivifying processes, expansion along lines that are as progressive as academic begins to take place.

The three things to be considered about any site that may be available are the opportunities that it offers for such development, economy in price, and dignity in position; and we put them in what we consider to be the order of their importance. It must never be forgotten that the Report of the Royal Commissioners on University Education in London did not plan in their recommendations so much a machine to start at once in perfection as one which, while discharging its functions now with all the efficiency which a considerable series of compromises can allow, should provide for the possibilities of future expansion. The Commissioners recognised that there must be a great deal of harmony between opposing interests before a scheme working to something like the general satisfaction of all concerned could be set in motion, and it seems to us essential that the same reasonable frame of mind must be employed in choosing the *locale* of the new University quarter. It must be selected with an eye to the possible rearrangement of some existing institutions and to the addition of others. Therefore we regard the project of making over Somerset House, the most distinguished palace in London, to the University with considerable distrust, although the idea was on Tuesday last approved by the London County Council. It does not seem to us that a quadrangle of no vast size, inexorably bounded on three sides by main roads of the utmost importance and on the fourth side by premises whose confiscation is unthinkable, the whole standing on one of the most valuable pieces of land in the world, makes a good central site for a university whose intention it is to develop in many directions. Somerset House is dignified, but dignity is the third necessity only, and need not be bought at a high price when it will be within the power of the University to achieve it by well-directed effort, instead of buying it ready made. No one suggests that the Somerset House site could possibly be economical. In balancing the claims of the suggested site between Westminster Bridge and Waterloo Bridge with those of the two suggested sites in Bloomsbury, the question of price must play a part in the decision. Where the London County Council is the owner of a possible site generous terms might be obtained, for the Council bears part of the burden of supporting the University of London already, and takes a deep interest in its prosperity; while it will naturally be glad, in fulfilment of its æsthetic duties towards the citizens at large, to fill a conspicuous spot with the new buildings of such an institution as the University. Dignity is a great thing, and no institution more strongly than a great university has a right to demand the prestige of dignity in the outward symbols of its corporate life. But the University of London can attain to its dignity by not standing too much thereon. There is no necessity for a university, when making a new start, to be completely equipped with palaces in commanding positions. The future of the University should not be risked by any waiting for this kind of endowment, and delay for such a purpose would be out of keeping with the spirit of the report of the Royal Commission. The most dignified university buildings are those which have acquired their pleasing and perhaps imposing character by honourable use for the best purposes and by gradual additions to meet growing wants. Whether Bloomsbury, Kensington, Lambeth, or elsewhere houses the new University quarter, the essential thing is that room for evolution be found. We cannot believe that the teachers in the various faculties will desire in any majority to remain at Kensington.

Convenience must be regarded as a part of economy. Land whereon to build a University quarter would certainly be cheaper in Streatham than in the Strand, in Barnet than in Bloomsbury. But the new University quarter must have an academic and educational reason for its position; proximity to potential playing fields would not make an otherwise inaccessible site economical, even

[1] THE LANCET, Nov. 22nd, 1913, p. 1482.

though it were cheap. The Faculty of Medicine, when higher medical education in London is organised, may have less immediately to say to the locality of the central buildings than any of the other faculties, because higher medical education will be undertaken in close connexion with the hospitals. The site of the metropolitan hospitals is in the majority of cases fixed for the time being; while when a change of locality is forced upon any of these great charities other considerations must outweigh the claims of academic or civic pride in fine buildings prominently placed. Medicine and surgery can be intimate parts of a university education if the hospitals that are essential to a medical faculty are connected to the necessary extent of intimacy with the university; geographical intimacy is not so much required. But the medical faculty, being one of the most important constituents of the University of London, is on general grounds deeply anxious that the University should possess an adequate central home; and it may be part of the give-and-take demanded of some of the medical schools and scientific institutions that they should acquiesce, in return for corporate advantages, in the choice of a central site of which they do not wholly approve.

Precautions Concerning Celluloid.

THE Departmental Committee which was appointed in October, 1912, "to inquire and report as to the precautions necessary in the use of celluloid in manufacture and the handling and storage of celluloid and celluloid articles" issued its report last week, and we may say at once that it shows a very intelligent and impartial treatment of the manifold questions which the subject presents. The chairman, the Earl of PLYMOUTH, was supported by men well qualified to deal with the particular points which needed inquiry in regard to rendering the handling and storage of celluloid freer from danger than has been the case in the past. The committee included Captain MAURICE B. LLOYD, H.M. Inspector of Explosives; Dr. JAMES S. DOBBIE, the principal of the Government laboratories; Mr. H. M. ROBINSON, Deputy Chief Inspector of Factories; Mr. EDWIN O. SACHS, chairman of the executive of the British Fire Prevention Committee; and Mr. J. OLLIS, chief officer of the public control department of the London County Council; Mr. C. G. MARKBREITER, of the Home Office, acting as secretary. As the minutes of evidence show, many pertinent questions were put and the answers given were in the main instructive. The witnesses were frank and also well selected, including amongst them representatives of the trade in celluloid, many persons of scientific standing, and officers of fire brigades. The committee visited premises in London and elsewhere to see the conditions under which celluloid is made, worked, and stored. They also made a practical study of the operation and effect of the regulations in force in France and Germany. Dr. DOBBIE carried out many important experiments as to the nature and properties of celluloid, while the British Fire Prevention Committee placed at the disposal of the Departmental Committee the results of an investigation made by them.

We have given considerable practical attention to this matter. The danger in the use of celluloid was prominently brought into notice in THE LANCET early in the year 1892, when a number of experiments were made in our laboratory illustrating the alarmingly inflammable nature of the substance. We believe these were amongst the earliest experiments published calling attention to the risks which the use of celluloid articles entailed. In 1898 a serious incident was brought to our notice in which a hair-fastener or comb made of celluloid had ignited in contact with hot tongs, used in the curling of the hair. Several experiments were made with similar hair combs obtained in the open market, and the results were of so startling a character that we were led to urge that manufacturers should be compelled to stamp plainly on every article made of or containing celluloid the words "highly inflammable." In 1902 we repeated this warning in view of a report which was published in THE LANCET on "Burns from Celluloid," by Sir ALEXANDER OGSTON, Regius professor of surgery in the University of Aberdeen. Since the date of our work the applications of celluloid have increased very much. It has been estimated that celluloid in one form or another is to be found in between 40 to 50 per cent. of the shops in certain districts of London. A list giving the uses to which celluloid is put, if extracted from the catalogue of a big shop, would contain some 200 articles classified under the headings of (1) dress and personal; (2) fancy goods; (3) musical; (4) sports and toys; (5) stationery and office; (6) scientific and surgical; (7) factories and shops; and (8) lacquers. This list, however, does not include the cinematograph film. This industry shows an enormous development. In June, 1912, there were 32 producers of films in this country, and there were 80 firms engaged in renting or letting out films for hire and between 4000 to 5000 cinematograph theatres. Stocks increased and the celluloid danger grew in magnitude. Accidents were no longer confined to small domestic occurrences, such as were reported in THE LANCET 20 years ago; they became classed in 1900 as serious fires involving the loss of many lives. A terrible disaster last year in Moor-lane in the City of London, in which nine girls perished in the flames of a fire started by celluloid, roused a general feeling of indignation that such awful liabilities should be allowed to exist, and that apparently no attempts had been made to bring the storing and manufacture of celluloid under a system of public control. The demand for an official inquiry was made, and was promptly acceded to, with the result now before us.

We hope that the recommendations of the Departmental Committee will receive equally speedy

attention, so that safeguards may quickly be provided in connexion with the use of celluloid in manufacture, and the handling and storage of celluloid and of all articles made from it. The danger to the purchasing public, the danger in shops in which celluloid articles are exposed for sale, the danger involved in conveyance, the danger of warehousing large stocks, the danger of the cinematograph film, have all received careful attention at the hands of this committee, and the precautions which are laid down seem to us to be reasonable and to be warranted by the teaching of disastrous experiences. We agree that all domestic articles made of celluloid should be declared. The committee consider that they should be marked with the words "Celluloid, inflammable." We made the same suggestion 20 years ago. We agree that warnings should be issued to shopkeepers as to the dangerous properties of celluloid. Often at Christmas time many shops swarm with celluloid toys that the immediate present is a date when such a warning should be issued. We agree also that there should be certain restrictions in regard to storage. There was actually found on one set of premises in London over a ton of celluloid, while the site of storage has its risks as well as the bulk, for films have been secreted underneath an hotel and in domestic flats. It is evident that the conditions under which this business is carried on are quite unsatisfactory. Celluloid is an exceedingly useful substance, and has been turned to human account with advantages in very many directions, but it can never be allowed to masquerade as an innocent material. There is much ignorance of the dangerous nature of celluloid which this report should go far to remove, and the recommendations in it, for which we may claim to have laid some foundation, should be adopted.

Annotations.

"Ne quid nimis."

THE ISTHMIAN CANAL AND DISEASE.

IT is now accepted that without our present knowledge of malaria the Isthmian Canal could not have been constructed, but it is less well understood that the making of the canal has furnished opportunity for acquiring greatly increased information about the disease, especially with regard to its epidemiology and administrative control. Some of the valuable results obtained are to be found in a small pamphlet issued by the Isthmian Canal Commission and written by Dr. S. T. Darling, the chief of the laboratory of the Board of Health.[1] It is a short pamphlet, but it contains the results of much work and is of interest to the physician, the administrator, and the investigator. The investigator will find an account of the 11 species of anophelines found during the past eight years in the canal zone. Of these the most important as a transmitter of malaria at the present time appears to be anopheles albimanus. The methods found best for the collection of larvæ, the breeding and feeding of mosquitoes, and how best to secure biting and infection are described. It was found that at least 50 per cent. of the parasites were destroyed in the mosquito by the polymorphonuclear cells of the ingested blood, and that the food contents of the gut of the insect greatly affected the development of the parasite. The physician will learn that though a patient is treated with quinine the amount present in the blood does not prevent normal development in the mosquito, but there is a steady diminution in the number of the parasites, whether crescents or gametes, in the circulating blood, accompanied by an increase in large mononuclear cells. It was found that a treated patient should not be discharged until the number of gametes was reduced well below the limit of infectiousness; a patient with 12 gametes per c.mm. could act as a carrier, and these cases were of the utmost importance to the administrator in delimiting malaria. An investigation into latent untreated malaria which contributes so largely in every tropical community to the preservation of the malarial parasite was made; it was found that about 10 per cent. of the inhabitants were infected. Of interest to the administrator also are the results of experiments on the efficiency of larvicides, the mesh and material of wire screening, the effect of salt and sea water on larvæ, and the action of various agents which may be employed to destroy the food of the larvæ. The work on malaria does not preclude investigation of other diseases, as is evidenced by the interesting account of entamœba tetragena by Dr. Darling,[2] but enough has been said to show how fruitful is the work of the Department of Sanitation in the Canal Zone.

THE PHYSICIAN IN ENGLISH HISTORY.

To the student of medical history the subject of the medical man outside of medicine is one of great interest and full of suggestiveness. The very nature of the training in medicine impresses upon a man—one, that is, who is in any sense "called" to the study of medicine—a character, a mode of thought, a particular outlook, which more or less insensibly colours his attitude towards all the relations of life. Thus it arises that the careers of medical clerics, medical lawyers, medical administrators, medical soldiers and sailors and adventurers, medical artists and writers of imaginative literature, have formed subjects of collective study at different times. A recent and most valuable study of this character was the Linacre lecture[1] this year, by Dr. Norman Moore, in which the author endeavoured to trace the influence exercised by the physician on the nation at large, other than that arising out of his scientific discoveries and their direct application. Starting with Cynifrid, who is mentioned in Bede's "Historia Ecclesiastica Gentis Anglorum," as the medical attendant on the Abbess Etheldreda of Ely (obiit 679), and as being present at her disinterment 16 years later, Dr. Moore discusses the death of William the Conqueror,

[1] Studies in Relation to Malaria. By Samuel T. Darling, M.D., chief of laboratory of the Board of Health, Department of Sanitation, Isthmian Canal Commission. Second edition.

[2] Budding and other Forms in Trophozoites of Entamœba Tetragena, simulating the spore cyst forms attributed to Entamœba Histolytica, by S. T. Darling, M.D. Archives of Internal Medicine, vol. ii., pp. 495-506, May, 1913.

[1] The Physician in English History (Linacre Lecture, St. John's College, Cambridge). By Norman Moore, M.D. Cambridge: University Press. 1913. Pp. 87. Price 2s. 6d. net.

the physician ecclesiastics of the Middle Ages, the establishment of the London College of Physicians in 1518 by King Henry VIII. at the instance of six physicians, of whom the prime mover was Linacre, and the foundation of the Royal Society. He refers to Francis, Caius, Sir Hans Sloane, William Gilbert, Sir William Petty, Thomas Lodge, Cowley, Garth, Arbuthnot, and others to illustrate the share taken by members of the medical profession respectively in the revival of Greek learning, in additions to science—not merely medical science, but science in general—in establishing hospitals, in building up medical education, and in contributing to English literature. Such studies are not only very interesting, but are of real value in making us comprehend the stability of our foundations as an art and a science.

CHRISTMAS AND BURNING ACCIDENTS.

As Christmas approaches we would remind parents and organisers of seasonable entertainments of the terrible accidents which have arisen in the past owing chiefly to the inflammable nature of cotton-wool. Children and others dressed up in muslins and light materials and decorations of cotton-wool to imitate snow, should not be allowed in any room where there are unguarded fires or unprotected lights of any kind. Youths of the present day light cigarettes at the smallest opportunity and on occasions which 20 years ago would certainly not have been made use of for smoking, and those indulging in this silly habit should be sternly checked in any room or place where costumes are being worn of the nature indicated. The safest plan is, of course, for parents to insist that their children shall not take part in entertainments at which the usual inflammable materials are present. This may be a counsel of perfection, but, at any rate, reasonable precautions can be taken, and means of extinguishing fire, should it break out, can be provided.

THE URINARY REACTION OF WEISZ.

THIS reaction was originally brought into notice in 1910 as preferable in regard to simplicity to the diazo-reaction of Ehrlich. It has the further advantages that it is never observed in normal urines, and is not simulated by various drugs such as creasote, laudanum, and naphthalene, as may be the case with the diazo-reaction. Neither is it nullified by substances artificially added to the urine. The technique consists in diluting the urine with twice its bulk of distilled water; three drops of a 1 per 1000 aqueous solution of permanganate of potash are added and the mixture shaken. If the reaction is negative the liquid does not change colour, or only becomes slightly brownish; if positive it assumes a greenish yellow or golden colour. According to Weisz the reaction indicates that the patient is the subject of tuberculosis in an advanced stage, so that it has a double significance, diagnosing that the disease is tubercle and prognosing that the state of the patient is grave. Dr. E. Salustri has recently published in the *Policlinico*[1] the results of his investigations on this subject made in Professor Ferrannini's clinic at the University of Camerino. He found that when in a patient who was seriously ill but the exact nature of whose disease was doubtful the urine showed the Weisz permanganate reaction in a pronounced manner, this fact points to the definite conclusion that the disease is dependent on Koch's bacillus and is in a very advanced stage. On the contrary, the absence or feeble degree of the reaction excludes tubercle as a cause without impugning the marked gravity of the disease. When the affection from which the patient is suffering is of medium or slight gravity the presence of this reaction does not afford precise evidence that it is due to tubercle, but is useful as a confirmation that the disease, whatever its nature may be, is of little gravity. In other words, the significance of the reaction in respect to the diagnosis and prognosis of tubercle is much more important and marked in patients in whom the reaction is either invariably absent, or, on the other hand, is constantly present in a marked degree.

[1] 1913, xx., Fasc. 48, p. 1730. Rome: Via del Tritone.

THE LAST ILLNESS OF MICHAEL BARCLAY DE TOLLY.

THE recent celebrations of the centennial of Napoleon's collapse after the Russian campaign have again brought into prominence the leading personalities of that period. Eminent among these was Prince Michael Barclay de Tolly, whose Fabian policy was largely responsible for Napoleon's inability to crush the Russian army. In the *Petersburger Medizinische Zeitschrift* of Nov. 15th Dr. Arved Bertels has discussed the nature of Barclay de Tolly's last illness, his sources of information being the reminiscences of an eye-witness and an account of the necropsy found in the Government Library in Riga. The reminiscences published in 1887 were by Barclay de Tolly's adopted daughter, who was 14 years old when she accompanied him on his last journey in 1818. At this date he had been granted two years' furlough to travel abroad for his health. During his journey he had frequently to stop his carriage on account of severe pain in the chest. Supported by his physician, he would walk a few steps, and when the pain had passed he would continue his journey. After travelling through Riga, Memel, and Tilsit he had almost reached Insterburg when his physician declared him incapable of advancing farther. He was lodged at a small hunting-lodge, where he died on the same night. Physicians were summoned from Königsberg and Berlin to embalm the body. Barclay de Tolly died on May 16th. In a document dated May 29th, 1818, Dr. Fahrenhorst, who signs himself "Konigl. Preuss. Kreiss-Physikus," gives an account of the necropsy. The liver was so friable that it broke on pressure. The much enlarged gall-bladder contained a slimy fluid instead of bile, and 25 gall-stones of various sizes. The largest stone was impacted in the common bile-duct so as almost to prevent the passage of a bristle. The spleen was much enlarged and fell to pieces on palpation. A small collection of pus was found in the right kidney. The chest contained two "stof," or about 2400 c.c. of water. The left side of the heart was small and contained many polypi. The right side of the heart was much enlarged, and the aortic valve much ossified. The report of the necropsy concludes with the remark that no medical skill could have saved the patient. Probably the state of the liver and spleen was largely due to post-mortem changes, as the necropsy must have been performed a considerable time after death. Dr. Bertels thinks that the "polypi" in the left heart

were nothing but blood clots, and that the "abscess" in the kidney must have been a small fibroma, hypernephroma, or adenoma—tumours which are often found in the kidneys in the course of a necropsy. It is certainly conceivable that the pain in the chest may have been due to biliary colic, for it is now known that an impacted gall-stone may cause pain referred to the chest and not to the gall-bladder or bile-ducts. But it is doubtful whether the conditions observed in the abdomen can alone account for the patient's death. It is true that gall-stones may prove fatal when peritonitis, cholæmia, or cholangitis supervenes. The two former may be excluded, for the report of the necropsy says nothing of peritonitis or jaundice, the absence of which suggests that the impacted stone cannot have completely obstructed the flow of bile. It is possible that cholangitis may have been present, but overlooked owing to the considerable interval between death and the necropsy. Yet Dr. Bertels regards this explanation as unconvincing; and he is inclined to trace the pain in the chest and the patient's death to sclerosis of the coronary arteries of the heart. These were apparently not examined after death. The facts that Barclay de Tolly continued his journey in a carriage till a few hours before death and that there was no record of fever suggest that death was due rather to heart disease than to cholangitis. The hydrothorax was probably the outcome of cardiac weakness during the last hours of life rather than of pleurisy or a chronic stasis. Thorough as is the report of the necropsy, this case illustrates in a striking manner the advances made during the last 100 years in our knowledge of morbid anatomy.

AN OPEN SAFETY-PIN FOR TEN DAYS IN THE ŒSOPHAGUS OF A BABY.

IN the *South African Medical Record* of Oct. 11th Dr. T. G. Blackburn has reported a remarkable case in which an open safety-pin remained for ten days in the œsophagus of a baby aged 3 months without producing any symptoms. The child was admitted into the Provincial Hospital, Port Elizabeth, with the history that she had swallowed a safety-pin. There were absolutely no symptoms; she was bright, happy, and laughing, and took the breast as usual. On the next day a radiogram was taken and clearly showed the pin fixed in the œsophagus, open, with the point upwards, about opposite the middle of the sternum. Interference was considered dangerous. Extraction upwards could be performed only if the point could be grasped and so prevented from doing irreparable harm to the œsophagus—a feat of manipulation practically impossible in such a narrow space. Trying to dislodge the pin had also its dangers, because if the bougie passed beyond without dislodging, on withdrawal it might drive the point into the œsophageal wall. Taking all the points into consideration, as well as the fact that the child was suffering no inconvenience, it was decided to wait, carefully watching the condition daily on the fluorescent screen. A week after admission the child first showed symptoms. She had crying bouts and was more restless, though there was no rise of temperature or vomiting. This condition continued for three days, and as the pain was thought to be due to commencing ulceration of the œsophagus it was decided that something must be done. She was placed on the X ray couch with the tube underneath and the fluorescent screen on top. A metal bougie large enough to fit the œsophagus was then passed till it was seen to touch the blunt arm of the pin. On applying slight pressure the pin was dislodged and passed down behind the cardiac shadow and appeared in the stomach. The pin was now in an accessible position, but it was decided to give Nature another chance and to see whether the pin would turn shut end down and be passed per vias naturales. Two days later it was seen to be fixed at the pylorus open end down. As nothing further was to be gained by waiting, the stomach was opened through a median incision made just below the xiphoid cartilage. The stomach and pin were brought to the incision. A slight incision over the blunt end allowed easy extraction. Three fine sero-muscular sutures closed the stomach opening and purse-string suture around this was used for security. The child stood the operation well and six hours afterwards took the breast. Recovery was uneventful.

THE EXPECTATION OF LIFE IN ANCIENT ROME.

THE study of the classics has during the last 30 years developed from what may be called a purely literary investigation—i.e., questions of text, grammar, and style—into the study of social and human problems. Thanks to the labours of scholars such as Dill, Glover, and William Arnold the society of the Empire is brought before us as a living society, and as one which only too closely in some ways resembles our own to-day. Mr. Raper, in the *Classical Review* for February, 1913, evolved an ingenious and charming theory about Vergil as a priest of Apollo (with a possible strain of Jewish blood), and a descendant of that Thracian Maron who provided Odysseus with the potent wine by means of which he subdued the Cyclops; while Mr. Mackail, in the current *Journal of Roman Studies*, has shown in his own brilliant manner the close connexion between Vergil and Roman studies, his accurate archæology, his advocacy of "small holdings," and his treatment of other economic problems. The weariness of life in a great city, the crowds, the dirt, the struggles of those who really were in "the smart set" to maintain their position, and of those who were not yet numbered in that blissful company to attain to it, are contrasted with the peaceful life of the country both by Vergil in his gentle, saintly manner and by Juvenal in a style very much the reverse. Confirmation of the unhealthiness of life in ancient Rome is afforded by a study of the Latin inscriptions, and such study has given birth to a most interesting paper by Dr. W. R. Macdonell which appears in *Biometrika* for October. Dr. Macdonell searched those portions of the Corpus Inscriptionum Latinarum which refer to Rome, Hispania, Lusitania, and Africa respectively. The Roman inscriptions he divided into two classes—namely, the civil population and the soldiers in garrison. As regards the former, Dr. Macdonell gives curves comparing their expectation of life, so far as it can be calculated from ages at death, with the curves shown in the Registrar-General's report for 1891–1900. The difference between the modern curve and that of Rome is enormous at first, while the Roman curves for both sexes are practically level for the first 40 years of life. For this period the Roman's expectation of life was roughly 23 years, while the English curve shows at birth an expectation of about 57 years, at 20 years of age an expectation of 40, while

between 50 and 60 years the modern and ancient expectations coincide. After 60 the ancient expectation is better than the modern, which Dr. Macdonell accounts for by the selection of the young, which is obvious from the heavy mortality among them. As to soldiers in garrison, curves could not be plotted for lack of material, but the inscriptions show that their expectation of life was inferior to Roman males, and between 25 and 50 years to Roman married women. When the figures for Hispania and Lusitania are taken, the expectation of life in childhood rises at once, while two deaths are noted at the age of 115 and one at the age of 125. For the first 30 years of life provincial expectation is far higher than in Rome. It decreases until 45, and from 45 to 75 is about the same. As regards the province of Africa expectation of life was fairly comparable, if somewhat lower, with the English curve up to 40; after that age it was superior. As regards Rome it was superior at all ages. It is worth noting that "senectus" was considered by the ancients, notably Cicero in his "De Senectute," to begin about the forty-sixth year of life.

RECURRENT INTUSSUSCEPTION AFTER OPERATION.

RECURRENCE of intussusception after operation has rarely been observed. In *Guy's Hospital Gazette* recently Mr. Edward M. Mahon reported the following case. A boy, aged 3 years, was admitted on July 15th, 1913, for abdominal pain, vomiting, and the passage of blood per rectum. In November, 1910, he had been admitted with the same symptoms. Intussusception was diagnosed, and Mr. C. H. Fagge operated and found the ileum intussuscepted into the ileum and thence through the ileo-cæcal valve into the colon. On reduction the gut was found to be very black, and it was doubted whether it was remediable. The intussusception was said to be of 11 hours' standing. The history of the present attack was that the patient had been perfectly well since the first intussusception until the day of admission. At 9.30 A.M. a sudden paroxysm of abdominal pain occurred. It lasted about four minutes and caused him to fall to the floor. Vomiting accompanied the pain. After the attack he felt quite well again, but during the next eight hours about 24 similar attacks occurred. At 2.15 P.M. tenesmus accompanied a paroxysm of pain, and blood was passed. With every subsequent paroxysm there were tenesmus and passage of blood. Eight hours after the first attack he was admitted. The abdomen was quite soft and moved well on respiration, but there was some tenderness beneath the right costal cartilages. At first nothing could be felt in the abdomen, but during a palpation a sausage-shaped lump appeared below the right costal margin and disappeared. On rectal examination nothing abnormal could be felt, but on withdrawing the finger it was found covered with blood. Intussusception was diagnosed. Mr. E. C. Hughes operated 11¼ hours after the onset of symptoms. Under the anæsthetic a distinct mass was felt below the right costal cartilages. The abdomen was opened through a rectus incision and the cæcum was found missing from the right iliac fossa. There was a mass high in the right hypochondrium. This proved to be large intestine with the ileum passing into it, and appeared to contain ileum, cæcum, appendix, and ascending colon. Reduction was easy, the colon first appearing, then the appendix, cæcum, and ileum. The last part of the reduction was ileum from ileum. The intussusception began two inches from the end of the ileum. Nothing was found to account for its origin. Rapid and uneventful recovery ensued. Only six cases of recurrence of intussusception in children after reduction by laparotomy appear to have been recorded. Mr. Charles P. B. Clubbe, in his "Diagnosis and Treatment of Intussusception," writes: "A recurrence following supposed complete reduction by injection or inflation does occur and must always be expected. But a recurrent invagination coming on immediately or soon after reduction has been effected by laparotomy is very rare. It did not occur in any of my cases. I have operated on two children for recurrence of intussusception coming on two and six months after operation." Mr. Clubbe's series consisted of 144 cases, and extended over a period of 13 years. Messrs. Adams and Cassidy in "Acute Abdominal Diseases" record only one recurrence in 100 cases, and this occurred five weeks after operation. Mr. D'Arcy Power in "Some Points in the Anatomy, Pathology, and Surgery of Intussusception" writes: "An intussusception sometimes recurs after it has been reduced by abdominal section, but recurrence is less usual after an abdominal section has been done than when reduction has been brought about by irrigation. In a few cases the intestine has remained so œdematous that the tumour has been felt after the wound has been closed, leading the operator to suppose that invagination has recurred. Such a condition may be distinguished from true recurrence by the fact that the swelling rapidly disappears, and with it the symptoms of obstruction. This is a rare accident, but Sir A. Pearce Gould met with a rarer one in which he performed laparotomy twice at an interval of three months for the reduction of two separate intussusceptions in the same patient." In the "Index Catalogue of the Library of the Surgeon-General's Office" are two references to recurrence of intussusception after operation, the intervals being 3½ months and five weeks respectively.

KING EDWARD'S HOSPITAL FUND FOR LONDON: ST. GEORGE'S HOSPITAL AND THE DISTRIBUTION COMMITTEE.

THE Governors and General Council of this Fund held a meeting on Friday morning, Dec. 12th, in St. James's Palace, the Duke of Teck presiding, at which the splendid financial position of the Fund was well revealed. Lord Rothschild, the honorary treasurer, reported that the amount received by the Fund up to Dec. 6th, after payment of expenses, was £150,000, while the fund had a sum of £170,000 on deposit with Messrs. Baring Brothers. He informed the governors that under the will of the late Sir Julius Wernher, by which the fund received one-twelfth of the residuary estate, a sum in all of £465,000 would shortly be received. £151,000 were placed in the hands of the committee for distribution among applying charities, and the details of the awards to the various hospitals, which have been published in the press, show great care in consideration of the various facts that dictated the awards, while the distribution committee are careful to draw attention to the fact that absence of a grant does not necessarily imply dissatisfaction with the charity. The committee report that the authorities of St. George's Hospital have now rendered their accounts for the year 1912 in an

amended form, reducing "the amount paid to the medical school out of the general fund of the hospital, in respect of specific work done for the patients, to a sum not exceeding that which was charged prior to the changes which led to the suspension of the Fund's grants." The committee therefore recommend a grant of £3000 to the hospital "subject to a certificate from the chairman of the hospital that the accounts for 1913 will be in conformity with those now presented for 1912." The Mount Vernon Hospital for Consumption does not now appear in the list since the hospital at Hampstead has not applied for a grant, and that at Northwood, being no longer a branch of any hospital applying for a grant, has been regarded as outside the area to be dealt with.

EARLY OPERATION IN CASES OF APPENDICITIS.

OUR Swiss Correspondent writes: "At the request of the newly founded Swiss Surgical Society Professor F. de Quervain, of Basle, collected several thousand reports on cases of appendicitis operated on in the years 1908 to 1912. As Switzerland still loses 400 of its inhabitants yearly from appendicitis, this collective report, published in the *Korrespondenzblatt für Schweizer Aerzte* on Dec. 6th, deserves attention. In Professor Sahli's Bernese statistics of 1895 still 21 per cent. of all the operation cases died; the total mortality, however, was only 9·6 per cent. This referred to 7213 cases. Professor de Quervain finds for his 6116 cases the operation mortality was reduced to 8·1 per cent., the total mortality having sunk to 7·8 per cent. In 404 operation cases at the Basle clinique from 1910 to 1912 the mortality was reduced to 6·2 per cent., the total mortality being 5·7 per cent. This was principally due to the fact that 164 cases could be operated on the first day, 104 cases on the second day. How much depends on early operation the following data prove:—

	Cases.	Mortality.
Operation on first day	1723 ...	0·7 per cent.
,, second day ...	1389 ...	4·7 ,,
,, third ,, ...	788 ...	10·7 ,,
,, fourth ,, ...	1197 ...	21·2 ,,

The length of stay at the hospital increased according to the later date of operation from 17 (first day) to 21, 31, and 40 days (for the fourth day). At the Bernese clinique only 6 patients succumbed out of 299 acute cases undergoing operation, and these had only entered after the fourth day. All the cases undergoing operation on the first and second days of the attack were cured."

PELLAGRA IN IRELAND.

WE publish in another column a further contribution to the study of pellagra in the United Kingdom. The case which Dr. F. E. Rainsford reports from the Stewart Institution at Chapelizod, co. Dublin, seems to have been a characteristic instance of the disease, pursuing, moreover, as has so frequently happened with the earlier cases of an advancing disease, a comparatively acute course and ending in death. The description of the symmetrical dermatitis, the gastro-intestinal symptoms, and the nervous symptoms can leave no doubt as to the accuracy of the diagnosis. In this case, further, as in the majority of the English cases hitherto reported, the patient was the inmate of an asylum, to which she had been admitted before any somatic symptoms made their appearance. It cannot be said that the mental features of the case presented any unusual or exceptional element; and the circumstances, therefore, do not support the view of the mental symptoms of pellagra being in any way pathognomonic. Dr. Rainsford does not mention if any necropsy was conducted, and further details as to the previous environment and mode of living of the patient would add in interesting manner to the contribution. We are glad to think that the case has not been missed, that several physicians concurred in its diagnosis, and that it has duly been recorded in medical literature. In this way interest is certain to augment, and both the medical profession and the public whom they serve will ultimately reap the benefit of increased knowledge and hopefulness in treatment.

AMBULANCE SERVICE FOR THE METROPOLIS.

IN regard to the scheme prepared by the Metropolitan Asylums Board, at the request of the London County Council, for the provision of a street ambulance service for the metropolis, the General Purposes Committee reported to the Council on Dec 16th that it could not recommend the adoption of the scheme on the grounds that it was not in accordance with the Metropolitan Ambulances Act of 1909 and that it was proposed that the administration should be wholly in the hands of the Asylums Board while the Council bore the cost. There was no precedent for the delegation by the Council of its powers in such a way. As the Board had no power to incur any expenditure in the matter the Council would have to reimburse, whether it approved the expenditure or not. The committee had come to the conclusion that the organisation and provision of an efficient system must rest with the Council. A certain number of authorities had ambulances which would be placed at the service of the Council, but these were insufficient, and additional provision must be made. During the meeting of the Council on Dec. 16th a report was circulated containing the proposals of the committee. The report was of an entirely tentative character, and indicated the intentions of the committee to establish ambulance stations with motor ambulances in six outlying districts, with one station in central London. It was thought that the service might be carried on under the supervision of the chief officer of the Fire Brigade. In addition to motor ambulances the committee proposed to provide hand ambulances or litters for carrying injured persons for short distances. The committee hoped after the Christmas recess to submit a detailed scheme, with estimates of cost.

THE RUMPEL-LEEDE PHENOMENON IN SCARLET FEVER.

NEARLY three years have elapsed since Rumpel and Leede first described in the pages of the *Münchener Medicinische Wochenschrift* a peculiar phenomenon in patients suffering from scarlet fever, which they suggested might supply a test for the diagnosis of this disease; yet so far as articles in our medical journals are an index little notice seems to have been taken of their work in this country. At last, in the current number of the *Edinburgh Medical Journal*, there is published a paper dealing with this phenomenon, written by

Dr. George Richardson and setting forth his experience of it as a diagnostic measure. Briefly stated, the phenomenon consists in the appearance of subcutaneous petechial hæmorrhages on the forearm of patients suffering from scarlet fever, when a bandage is applied just above the elbow sufficiently tightly to constrict the veins while allowing the arterial circulation to continue somewhat feebly, the pulse at the wrist being just perceptible. The hæmorrhages appear during the reaction when the bandage is removed, some degree of "capillary vulnerability" being apparently produced by the toxins of the disease. Dr. Richardson finds that the reaction is invariably obtainable in scarlet fever patients up to the end of the fourth week, and if complications are present up to the end of the fifth, though difficulties may be met with in producing it in infants with soft, fat arms. No hæmorrhages are producible by this procedure in cases of acute specific fevers in which there is no eruption, such as diphtheria and whooping-cough, but in patients in whom the rashes of measles or rubella are visible, or even in cases of drug eruptions and serum rashes, a somewhat similar phenomenon may occur. It fails, however, as soon as the rash in question has disappeared. It seems, then, that the test is of considerable value as a means of recognising scarlet fever at stages of the disease in which the rash has faded, but that it does not serve to differentiate between the rash of this disease and an erythema occurring in other conditions until the actual cutaneous disturbance has subsided. The procedure is so simple that it certainly seems worth while, for those who have the opportunity, to make further investigations as to its accuracy as a diagnostic measure, as cases are not rare in which recognition of an attack of scarlet fever in the post-eruptive stage is both important and difficult.

FOOD ADULTERATION AND CHRISTMAS FARE.

SPECULATIONS have appeared in certain lay papers as to the probability of the stock fare of the season showing on examination systematic adulteration. Exaggerated statements in regard to this matter have been made. It would be absurd, of course, to give an absolute undertaking that all the food partaken of this Christmas will satisfactorily pass the portals of analysis, but it would be fairly safe to anticipate that an examination would disclose the practical absence of objectionable ingredients. That is to say, if there were found any adulteration at all it would not be of a very serious kind, or exist to a serious extent. After all, it is to be remembered that the present Sale of Food and Drugs Act, though it has certain defects, works very well in the direction of protecting the consumer, and the figures of the past 10 years show a gradual fall in the percentage of adulterated samples. Whatever may be said in regard to the desirability of introducing reforms in this department of State health administration, the fact remains that our food supplies at the present moment are very carefully watched, and it is doubtful, speaking generally, whether a higher standard of purity has ever been reached or maintained before. Modern offences are mostly petty in kind, amounting here and there to the presence of a small quantity of preservative which in a good many instances proves to be unobjectionable, or, again, to a deficiency of cream in milk, or to a foreign but innocuous colouring matter in sugar. The fraud committed through trading in food commodities is not so rife as it used to be, while the use of poisonous materials has practically been stamped out. So long, therefore, as the officials responsible for the working of our Food Acts do not relax their admirable energies we may reasonably hope that the present good general standard of purity in regard to food-supplies will not be lowered, because of the extensive buying of the Christmas season. It should be added that to submit the staple fare of Christmas to chemical analysis might be waste of time. It is not always that analysis can be trusted to give an explanation of disagreeable symptoms when they happen to arise. Modern instances of food poisoning rarely furnish a clue to the chemist or analyst. The contamination is nearly always biological and therefore a matter for the bacteriologist and pathologist to clear up. The safeguard is to keep food-supplies in clean surroundings.

THE MESOTHORIUM TREATMENT OF CANCER.

AT the German Congress of Gynæcology Professor Krönig, of Freiburg, and Professor Gauss reported that they had devised a new method of giving large doses of mesothorium; it consisted in the use of a special filter for the rays, so that the alpha and beta rays which have a severe burning effect were completely absorbed by the filter and the gamma rays alone remained. The filter employed consisted of a layer of lead two millimetres thick, a layer of gold three-quarters of a millimetre thick, and a layer of platinum half a millimetre thick. Previously they had treated 26 patients with unfiltered mesothorium rays, and in every case recurrence had occurred, ending in death. They had also treated 64 cases with mesothorium rays and with X rays in order to avoid recurrence after removal of the growth by operation. These 64 cases were divided into two groups. In the first group of 43 cases the X rays were for the most part unfiltered, and of these cases 23 have since died with recurrence of the growth. In the remaining 21 cases in which all the rays were filtered no recurrences had occurred at the time of the communication. They had also treated 48 cases of inoperable cancer by the new method, and of these 18 were still under treatment. Of the remaining cases 17 might be claimed as completely cured, for in several of them local excision and histological examination had shown that the disease has been completely removed and that no recurrence had taken place. In 5 cases death occurred during the treatment. In 8 cases the treatment was discontinued at the request of the patients. The longest interval of freedom from relapse had been a year and two months. The cases included examples of cancer of the uterus, the breast, the œsophagus, the face, and the stomach. They had come to the conclusion that large doses of mesothorium and X rays, if injury to the skin is avoided by filtration of the rays, have a curative action on the cancer cells even in the deeper layers, though there is no effect on metastases. Professor Döderlein, of Munich, confirmed the statements of the authors of the paper; he said that he had ascertained by means of excisions the gradual destruction of the cancer cells in the various stages of the treatment until they disappeared completely. The malignant tissue was replaced by a mass of firm fibrous tissue, the

discharge and hæmorrhage disappeared, and the general state of the patient improved.

VITAL STATISTICS FOR 1910 OF THE UNITED STATES OF AMERICA.

WE have received from the Census Bureau at Washington a report on the mortality of the Registration Area of the United States for the year 1910. This report, which is the eleventh of the series, appears as a folio volume of more than 600 pages, and is the work of Dr. Cressy Wilbur, chief statistician of the Census Bureau. The population whose mortality statistics are now published amounts to 58·3 per cent. of the entire American Republic. The territory thus inhabited, and designated the Registration Area, occupies fully one-third part of the vast domain of the United States. In a preface Dr. Wilbur intimates that, although the mortality records now presented are directly comparable with the population statistics as enumerated at the thirteenth Census, full details respecting the latter are not yet available. Consequently, the general or crude death-rates alone can now be given. Nevertheless, complete details of mortality, derived from comparison of deaths with population, by means of corrected death-rates and life tables, together with an analysis of occupational mortality, are promised in a forthcoming volume, the preparation of which has already been commenced. Accordingly, the present volume must be regarded as a continuation of the series of annual reports already published, which deal generally with the mortality of various parts of the country. By means of tables in the text, which are comparable with those published by the English Registrar-General, the general tendency of mortality from all causes and from specified causes may be studied and comparison readily made with changes in foreign countries. From one of these tables, relating to 1910, it appears that the crude death-rate of the entire Registration Area was 15·0 per 1000 living, against 13·5 per 1000 in England and Wales. It was somewhat higher than the rates of 1908 and 1909, but with these exceptions was lower than in any previous year respecting which statistics are extant. The present report, which has apparently been compiled with great care, marks a distinct advance in American vital statistics, and under the able direction of Dr. Wilbur still further improvement in this important direction may confidently be looked for in the future.

THE proposed amalgamation of St. George's Hospital and Westminster Hospital is now in jeopardy owing to a difference of opinion which has arisen on the question of a common site, and a meeting of governors of St. George's Hospital will consider a proposal made by their house committee for sanction of the purchase of a site at Wandsworth.

Sir Alfred Pearce Gould has sent to Prince Alexander of Teck, as chairman of the Middlesex Hospital, £1000 which he received from "a friend," for the purchase of radium to be used in the treatment of the patients in the cancer wards of the hospital.

THE London Post-Graduate Association, we are informed by the secretary, is to be wound up at the end of the year.

THE INDIAN MEDICAL SERVICE.

THE Public Services Commission took up the inquiry into the Medical Services on Nov. 21st.

Surgeon-General Sir C. Pardey Lukis, Director-General of the Indian Medical Service, who was first examined, expressed no views regarding probation and training, as the present system, he thought, was quite good. Out of the sanctioned strength of 748 officers in the Indian Medical Service, only 722 posts had been filled up, of which 54 were Indians. Out of these 54, only 28 applied for civil employ. Before long they would have the station hospital system for Indian troops on the same lines as for British troops. In his opinion it did a man no harm in being put to regimental duties for six years. He thought all Indian Medical Service officers should be placed on the general list as regards selection for the grades of lieutenant-colonel, adding that there was no doubt that the best men were not coming into the service. "The reason for this," said Sir Pardey Lukis, "is that an impression has got abroad that the Indian Medical Service is going to be broken up. I am not saying it as my own impression, but it is an impression at home." He gave figures to show that the number of Indians in the service of late years had increased considerably. Out of 72 new appointments 15 were Indians. He hoped the training of candidates would be augmented by a course of study at the new Tropical Diseases School in Calcutta. In his opinion the training was satisfactory. He had been much astonished at the figures which showed the number of applications from candidates to enter the civil service. The figures were 52 per cent. Indians and 87 per cent. of Europeans. He would have thought that they would have been the other way round. In the cases of men who were to enter the civil service, witness did not think that service with the regiment should be too long. All appointments for ordinary civil work were made by seniority without regard to the question of military rank, and, in his opinion, any system of selection would be injurious. The witness said that at present 331 out of 475 of civil surgeons were under orders for reversion to military duties in the event of a general mobilisation. The number of men who sought service in the Indian Medical Service had decreased. Young men were, in fact, so fully occupied now in England that a practitioner would have to pay 8 guineas a week for a locum tenens instead of the 2 guineas which was paid a few years ago. "We should be depending on a broken reed," said the witness, "if we relied upon England and the colonies in the event of mobilisation. Here, so far as we can ascertain, there are 1771 independent practitioners holding qualifications, Europeans and Indians. The Europeans are under contract with big firms and their services would not be available even if they were willing to come. Many of the Indian practitioners have large practices in big cities, and I cannot think they would give these up. Many of the remaining men belong to the non-martial races, so would not be the kind of men we should desire. Some time ago we tried to find out the number of practitioners who would volunteer. We found 24, all Europeans, and these facts," added the witness, "justify me in holding the opinion that the question of the war establishment is one of considerable importance."

The standard of training in the Indian medical institutions at Calcutta, Madras, Bombay, Lahore, and Lucknow, Sir Pardey Lukis thought, was good, and in some cases better than that given at home. The only defects were the non-insistence on practical training for students before granting them diplomas, the understaffing of colleges, and the want of development in special branches of study, such as throat and ear diseases. All examining bodies at home insisted that students should have attended confinement cases before they qualified themselves, which owing to existing conditions in India was not possible: for the M.B. examination in the Punjab University, a registrable qualification, students were not required to have practical training regarding women's diseases. The M.B. of the Punjab University could go direct to the Indian Medical Service, and though he could get into the service he was not qualified. Therefore witness laid stress on the importance of insisting that students should undergo practical instruction in women's and children's diseases. He suggested that the marks should be raised from 600 to 700 in women's and children's diseases as in medicine and surgery.

Sir Pardey Lukis next said that civil assistant surgeons had a better training than military, and that the former's were registrable qualifications. He suggested that students in the military assistant surgeon's grade should have the same training as those in civil employ. He submitted in January, 1911, to the Government of India a letter suggesting this improvement, and a dispatch had been sent home. The only advantage the military assistants had was that after passing the examination they went with British troops and obtained an excellent training, not only with soldiers, but with women and children; and in the treatment of women and children they were better than the civil assistant surgeons. Military assistant surgeons had training in X ray work and bacteriology, but he would like to see them from the very beginning receiving the same training as civil assistant surgeons. The defect in their training had an effect on their popularity. The witness said, in reply to Lord Islington, that there was no medical college entirely devoted to women in India, and this had generally an effect in keeping away the better class of Indian women from taking to medicine. When Lady Hardinge's Medical College for Indian Women at Delhi was opened he hoped a better class of women would join it. The scheme was complete and the names of the selected students would be announced as soon as Her Excellency returned to Delhi. There were 355 medical missionaries in India and they were serious rivals not only to the civil surgeons but to independent practitioners also, as missionaries treated practically for nothing in return. To stop medical practitioners who had no qualification from practice a Bill was passed by the Bombay Legislative Council in March, 1912. A similar Bill introduced in the Madras Council by the Hon. Dr. T. M. Nair, was under consideration, and one would be brought before the Bengal Council during the ensuing winter. An Imperial Act was also under consideration. But those Acts were not intended to interfere with the practice of the Eastern system of medicine.

There were only two places in India—Calcutta and Bombay—where independent medical colleges could be established. He gave an account of the private medical institutions in Calcutta. The hospital at Belgachia, in connexion with the Albert Victor Hospital, was an excellent institution with a good surgical and medical staff, but was badly handicapped for want of funds, and consequently for the necessary building and equipment. He had heard unofficially that the Bengal Government had decided to give 5 lakhs non-recurring and 50,000 a year recurring for the upkeep of this institution on condition that the college was affiliated to Calcutta University and the necessary building and equipment for a hospital were provided. This, Surgeon-General Lukis thought, would form a great outlet for independent medical practitioners.

Replying to questions concerning the unpopularity of the Indian Medical Service with young men at home, Sir Pardey Lukis said: Personally, I believe that the Indian Medical Service is now as safe as it ever was and that it presents as many opportunities for good careers as ever. I have been preaching that gospel for some little time, and I was horrified to find how little impression I could make.

Mr. Ramsay Macdonald: Is the unpopularity of the service due to the assumption that the enrolment is not good or that the service itself is going to suffer at some future time?

Sir Pardey Lukis: The whole of this trouble has arisen since Lord Morley's circular. The unpopularity of the service was due to the fear that one-third of the civil surgeoncies would be given over to independent medical men, and to military surgeons being absorbed by the Royal Army Medical Corps.

Replying to Mr. Madge, Sir Pardey Lukis doubted whether the Director-General should be joint secretary in the Home Department.

In reply to Mr. Abdul Rahim, Sir Pardey Lukis said that the cause of the unpopularity of the service was the insufficiency of the salary given to members and the employment of independent medical men in responsible posts.

In examination by Mr. Gokhale, Sir Pardey Lukis said that in the event of civil surgeons reverting to military duty in times of war the positions thus made temporarily vacant would be filled by the assistant surgeons. The number of men liable for military service would cause a big dislocation, but they would not all be recalled at once, but in six different sections. If the whole of the Indian army was mobilised a large number of civil institutions would have to shut up.

Replying to further questions, Sir Pardey Lukis said that in England a young practitioner after graduating went to quiet places and then went into big towns, but a young Indian would not do that. He was not aware of an impression among Indian members of the Indian Medical Service that only inferior posts were given to them; such an impression was not justified. 75 per cent. of the European members of the service possessed the higher qualifications, and 153 officers of the service had specialised themselves. He did not approve of the appointment of independent medical practitioners as professors in Government colleges, but suggested the establishment of private institutions where the abilities of such men could be utilised. As to the desirability of appointing Indian assistants to posts when vacancies occurred in the department in which they had served for a number of years, Sir Pardey Lukis said that Indian assistants had done well. In Calcutta Rai Bahadur Chunilal Bose had officiated at various times. Sir Pardey Lukis added that the defects pointed out in the Punjab University examination in his opinion existed in other places too.

In reply to Mr. Sly, he said he would have no objection to Indians being given a scholarship to proceed to England for medical tuition after they had obtained their diploma. He would accept a scheme of study leave, applicable to military assistant surgeons, civil surgeons, and Indian Medical Service officers.

Mr. Fisher: Considering the formidable list of duties which a civil surgeon has to do, would you be in favour of specialisation?

Witness: I am quite in favour of the amalgamation of the sanitary with the bacteriological department, provided the Director-General of the Indian Medical Service was head of their department with the Sanitary Commissioner as his staff officer.

Answering Sir Valentine Chirol, witness said that in view of the fact that personal claims must be subordinated to the Indian Medical Service which was essentially a military body, it was not hard to understand that no Indians volunteered for war service. Also it must be remembered that of the total number of independent practitioners nearly 1000 Indians belonged to non-martial races. In order to bring India up to the numerical standard of practitioners in Great Britain there would be required a total of 250,000 practitioners.

To Sir Murray Hammick, Sir Pardey Lukis said that there was no difference in the scale of pensions given to military men and civil employes of the service, and there should be the same *cadre* in the provinces all over, so that efficient men could be imported from outside when necessary without difficulty.

The second witness, Major R. F. Baird, I.M.S., civil surgeon of Benares, who represented the United Provinces, said that the main causes of uncertainty regarding the service was the possibility of a rush of private practitioners and a suggestion that a good number of civil work would be handed over to them. He considered that the medical training obtained at home was superior to that given in India, and recalled the fact that the Indian University qualified men had to undergo training in England before they could get into the service. In India the training was defective, especially in midwifery and children's diseases. He advocated, among other things, the giving of house surgeoncies in big hospitals to private practitioners, and said that if a civil surgeon had an extended private practice it increased his efficiency, while during the military period of an Indian Medical Service officer's career he gained no teaching experience. He advanced no objection to professorships being given in the colleges to independent practitioners. It was urged that civil surgeoncies should be held by Europeans, because they had practice among European families. He admitted that that argument could cut both ways; but in the cases of Indian ladies it did not apply so strongly as they would not see any man at all.

Mr. Gokhale having interposed the remark that the *purdah* system was not so strong in other parts of the country as in the United Provinces,

Captain J. T. Parkinson, I.S.M.D., said that he represented 53 surgeons of the United Provinces of the Indian Subordinate Medical Department. He said that it seemed

anomalous to him that his department was called subordinate.

Mr. U. N. Bannerjee, representing the assistant surgeons of the United Provinces, said that his colleagues complained of the scale of pay and the exclusion from higher appointments.

Dr. Bhawat Ram Sawhney (representing the Punjab Medical Union) was the first witness taken on the second day of sitting. He agreed that no Indian should enter the Indian Medical Service without holding British qualifications. He urged the recruitment in England of a staff of professors for medical colleges in India. He was not in favour of Indian Medical Service officers taking professorial work, believing that deterioration in efficiency of medical practice was due to entrusting work to Indian Medical Service officers who had no experience of that work. In teaching hard work was required and great interest should be evinced. Indian Medical Service officers with the necessary training, qualifications, and ability made good professors, but he was of opinion that they lost freshness and did not obtain after coming out to India the experience essential for teaching. He urged the reduction of the present medical organisation by half and the substitution of private practitioners. He thought that private practitioners could be encouraged without the adoption of any change so sweeping as to have serious effect on the Indian Medical Service. He remarked that London hospitals were closing their doors against the Indian student, but better understanding would change that attitude. It was advisable for Indians to study in India, but he would have all full surgeons trained in England. He added that his experience of training colleges in India was gained 35 years ago, and improvements must have been made since then. He knew, for example, that the professors now went on study leave.

Lieutenant-Colonel H. Smith, civil surgeon, Amritsar, thought that Lord Morley's circular had still influence in the service. There was a feeling of uncertainty about the future. He would make all Indian candidates go to England. If they did so it would be to their advantage. They would be placed on a similar footing to that of Europeans. He thought the standard of Indian colleges was "up to the times," and there was not the social life and rough-and-tumble of an English college. He would restrict the number of Indians who desired to enter the service to 20 per cent. "The medical practice in the Punjab," continued witness, "is as overstocked as is the Punjab Bar." Most Indians, witness continued, had agreed to leave nominations to the Indian Medical Service with the Government, and that the number of Indians in the service should be restricted to a maximum of 20 per cent. He said that the scope for corruption and bribery open to a civil surgeon engaged in legal work was enormous, and that, as English practitioners understood it, there was no such thing as professional etiquette in certain classes of practitioners in India.

Lieutenant J. F. Fleming, Deputy Superintendent of Lunatic Asylums in Lahore, stated that though the subordinate department were entitled to a month's privilege leave in the year, they were not given that, and they had no holiday in the year, not even on Sundays or public holidays. He objected to the placing of their department on an equality with civil assistant surgeons. Without making any suggestion as to the limitation of Indians in the Indian Medical Department, he was of opinion that Europeans wielded greater influence and commanded more respect from the people.

Mr. Mirza Yaqub Beg, civil assistant surgeon, Punjab, suggested the creation of more posts for civil surgeons, so that officers with the necessary qualifications of civil assistant surgeons might have a reasonable chance of holding higher appointments. He stated that in view of the hard work and incessant travelling civil surgeoncies should be given to the younger members of the department. Civil assistant surgeons in his province claimed exemption from the provisions of the Arms Act. That was a privilege they should be entitled to in view of the number of dacoities and other outrages that were committed in parts of the Punjab. The conditions of salary and pension were matters of complaint. Their pay was not adequate considering their arduous duties. Witness advocated retirement on pension after 20 years' service on the ground that the service was hard-worked.

Assistant Surgeon J. Malir, speaking for the I.S.M.D. Railway Sections, was the first witness on the third day of sitting. He stated that assistant surgeons of railways demanded, *inter alia*, the same privileges as were granted to the Indian Medical Service. They performed the same duties as civil surgeons, and it was only in exceptional cases that the aid of civil surgeons was requisitioned, and then only for consultation. He knew many cases where military assistant surgeons were serving under civil assistant surgeons, and he saw no objection to it. As regards the comparative training of civil assistant and military assistant surgeons, the superiority of the former existed in theory only. In practice the military had more outdoor work to do and they gathered more practical experience.

Major R. M. Dalziel, I.M.S., superintendent, Central Jail, Punjab, said that the jail service was not popular, and difficulty was experienced in getting officers to enter the branch. Indian medical officers had conducted the jails so well in previous years that he could not see the need for any change. He was not in favour of transferring superintendents from one province to another on promotion; but he advocated promotion in the same province to the Inspector-Generalship. He was of opinion that by inter-provincial transfers there was a likelihood of interference with seniority claims of other officers, so that in one province an inspector-general might be senior to the next man by a few months. The central jails in big cities gave a good scope for the training of superintendents. He did not agree that assistant surgeons should take charge of jails. He did not think there would be any advantage in appointing a separate medical officer in addition to the superintendent who could give an opinion on the prisoners' health. He also did not agree that the governorship and surgeoncy of a jail should be held by different men.

Lieutenant-Colonel Browning-Smith, I.M.S., Sanitary Commissioner, Punjab, said that for the sanitary department of the Indian Medical Service officers drawn from the military were better than those in civil employ. A medical officer of a regiment had heavy work to do as to sanitation of troops. He thought many Indians particularly fitted for sanitary work in view of their knowledge of public health and their acquaintance with the language and customs of the people; on plague duty they had been of very great use to him. He had two deputy sanitary commissioners, one of whom was an Indian. He suggested that promotion in the sanitary department should be from one list for all India. The language problem certainly presented a difficulty, but he did not think it was insurmountable. In the sanitary department a European officer would have more authority with the people than would an Indian private practitioner. The Punjab Municipal Act gave large powers to sanitary officers, but it was a dead letter, and to that, and because they were not yet educated up to it, was due the apathy of local bodies. He quite saw the advantage of women doctors in sanitary work, but he did not think they had arrived at that stage yet. In the Punjab there was no officer who corresponded to the English inspector of nuisances: but he was training men to that end. Special plague officers were doing medico-surgical work, but they should be placed under the Sanitary Commissioner as their work came under the sanitation head. So far as administrative work was concerned the Sanitary Commissioner should be under the Inspector-General of Civil Hospitals; but on technical matters connected with sanitation he objected to that and suggested that the Sanitary Commissioner should be independent. The awakening of public interest in sanitation was proceeding apace in India, and it had progressed so far as to justify a considerable increase in the staff.

Major J. C. Robertson, Sanitary Commissioner with the Government of India, advocated an all-India sanitary and bacteriological department. There was difficulty in attracting officers to the department, and at the present time there was an insufficiency of men available for the service. During the past year men outside the medical service had been recruited into the department, but it was too early yet to state any result of the experiment. It was essential that Indians should be recruited to the department, one of the objects in this being to arouse the interest of the people. At present he would, however, prefer European superior officers because of their wider knowledge. He would be disposed to give superior posts to the best of the Indians from the Indian medical colleges provided they went home for two or

three years and applied themselves to the study of sanitation, and thought there existed a good opening for the employment of women doctors. He laid stress on making the department more attractive.

Dr. A. Lankester, honorary secretary to the Medical Missionary Association of India, stated that he had 22 years' experience in medical work in this country and was of opinion that there should be a considerable increase in the staff of the medical service in India, and private agencies should be called in more and more to help the Government. He thought that the civil surgeons were overworked and that there was great scope for an increase in the *personnel* of the service. He thought there would be a great advantage in Government hospitals taking private practitioners as honorary surgeons. The initial benefit would be with the practitioner, but ultimately the gain would be a double one. He thought it most important that a Medical Act should be introduced into India. He advocated making the civil side of the Indian Medical Service the premier branch and recruiting from there into the military side. The normal condition was one of peace. To ease the present burden of our work he would place the non-medical charge of jails in the hands of non-medical officers. He advocated the abolition of private practice among civil surgeons, but would compensate them for their loss. He suggested that hospitals in districts should be placed under the charge of outside practitioners, and that in cities a certain number of beds should be placed under their charge.

THE HEALTH OF THE NAVY IN 1912.

THE statistical report on the health of the Navy for the year 1912 is the first to appear over the signature of Surgeon-General Arthur W. May, who became Director-General in the latter part of the present year. The returns continue to show an improvement for the Navy as a whole, which is extremely satisfactory. The total force for the year 1912 amounted to 119,540, of which number 92,120 were serving in the Home Fleet or on the home station, the remaining 27,420 being distributed among the seven fleets and squadrons serving abroad. For the Navy as a whole the number of cases of sickness has been 642·5 per 1000 of strength, compared with 666·6 for the preceding five years' average, 1907–1911; the daily sick have been 25·16, compared with 27·67; the deaths 3·30, compared with 3·24; and the final invalidings 16·92, compared with 16·44 per 1000. The last two items are very slightly in excess of the ratios for the year preceding, as well as of the quinquennial average. The highest admission ratio, 948 per 1000, occurred on the East Indies Station, but this was below the quinquennial average of 988, though considerably higher than the ratio for 1911—viz., 876. The deaths on this station (5·55 per 1000) were, on the other hand, very much below the average ratio of 9·43. The highest ratio of daily sick, 35·8, was met with, as usual, among the men on the Irregular List, including crews on passage to and from foreign stations, and those of the vessels on the west coast of America and on detached service. Next comes the Home Station, with an average of 33·75, and the East Indies Station with 33·51; while the healthiest command was that of the Home Fleet, with a daily sick ratio of 21·04 per 1000. The difference between the health of the Home Fleet and that of the Home Station was more marked than usual. The latter force consists of men at the depôts and on training ships, at the hospitals, and at the Royal Naval College at Greenwich.

The chief cause of admission to hospital was disease of the digestive system, with 111 admissions per 1000. Next after this came venereal disease, for which the ratio was 106 per 1000, a considerable improvement on the average for the preceding quinquennium, 1907–1911, which was 119·8; the average number daily sick, 6·14 per 1000, was also a reduction on the quinquennial ratio of 7·84. The other chief diseases of importance, such as pneumonia (3·74 admissions per 1000), malaria (2·55), and tuberculosis (2·32), were below the quinquennial averages; but for rheumatic fever there were 906 admissions, constituting a ratio of 7·57 per 1000, which is an increase on the preceding average of 6·95. The disease returned under this heading must, however, have been of a very mild type, as only one death occurred among the 906 cases. Mediterranean (formerly called Malta) fever has practically disappeared from the naval returns, there having been only four cases and no death. The most fatal disease was pneumonia, causing 36 deaths (0·30 per 1000); after which come enteric fever with 29 deaths (0·24) and tuberculosis with 22 deaths, and organic heart disease with the same number (0·18 per 1000). The chief causes of invaliding were heart disease (2·70), nervous diseases (2·45), and tuberculosis (1·83 per 1000); the last-named only is a reduction on the quinquennial average (2·06).

On comparing the figures for the different naval commands it is seen that the East Indies Station suffered most, having an admission ratio of 948 per 1000, with 45 invalidings and 5·55 deaths. Malaria caused 37·5 and pyrexia 12 admissions per 1000, the other chief causes of sickness being digestive and venereal diseases and affections of the skin and connective tissue. The healthiest commands were the Mediterranean with 503 and the Home Fleet with 556 admissions per 1000.

Prevalence of Chief Diseases.

The diseases of most frequent occurrence in the Navy may now be considered in regard to their prevalence and distribution. Before alluding to these it may be mentioned that only 3 cases of small-pox occurred throughout the whole force, 1 case from each of three ships on the China Station; one of these was fatal. In two instances the patients had to be retained on board ship for periods of six and seven days respectively. No extension of the disease occurred, in spite of the inevitable closeness of contact with the rest of the crew, a fact which speaks highly for the protection afforded by vaccination.

Influenza (1413 cases) caused less sickness than has been usual of late years; the admission ratio was 11·82, compared with 21·24 per 1000 for the preceding quinquennium. The disease itself was mostly of a mild type, and there were no deaths; it occurred in all the commands except the Cape, most of the cases being on the Home Station and in the Home Fleet. Scarlet fever prevailed in epidemic form on the Home Station, where there were 334 cases and 4 deaths; 199 cases were admitted from the boys' training ship *Impregnable*, the epidemic continuing throughout the year, but being of a mild type. Diphtheria was again, as in 1911, prevalent on the Home Station, 167 out of the total 194 cases being admitted from this command, and of these 107 occurred at the Shotley training establishment; none were of a severe character. Fleet-Surgeon R. H. Browne remarks that some of the carrier cases dealt with were extremely intractable to treatment, and an appreciable number developed diphtheria later. He did not find prophylactic inoculation to be "of any material value." Seven cases were returned by the *Donegal*, of the North American squadron, 6 being boys; these were attributed to infection from Shotley, carried in the clothing or bedding.

Enteric fever caused 140 admissions and 29 deaths. On the Home Station 18 cases occurred on board the *Vivid*, most of them probably contracted at Plymouth; in 4 instances, also in 5 cases on the *Impregnable*, the eating of shellfish was thought to be the cause. To a similar origin were attributed several cases in the Home Fleet. At Ascension Island 15 cases followed on the flooding of water catchment areas by heavy tropical rains, owing to which the drinking-water became polluted. On board the *Formidable*, of the Home Fleet, 10 cases occurred, without obvious connexion, but apparently originating within the ship. Fleet-Surgeon H. C. Arathoon made an exhaustive investigation, and inclined to the belief that the disease originated on board. No definite vehicle of infection could be discovered, but the yeast used in baking was found to contain bacilli of the coli group. It is probable that in many instances the temperature reached in the interior of a large loaf may not be high enough to destroy the bacilli. Of Mediterranean fever 4 cases only occurred throughout the whole Navy. One in the Home Fleet is stated to have been a sequela of an attack originally sustained in 1905; the other three were on the Mediterranean Station—one, a Maltese, who drank unboiled goats' milk at his own home; another, a sailor who developed the disease while in hospital in Malta suffering from pneumonia; for the third, who had not been ashore for more than a month, no explanation could be found. A greater number of deaths occurred from pneumonia than from any other disease—viz., 36, giving a ratio of 0·30 per 1000, slightly below the quinquennial average of 0·32. Of the 448 cases, 197 were

admitted on the Home Station (chiefly from the depôt and training ships) and 185 in the Home Fleet, but there was no epidemic prevalence. Malaria showed a decided reduction, compared with former years. There were only 306 cases in all, giving an admission ratio of 2·55 per 1000, little more than half that of the quinquennium (4·91); 81 cases were contracted at Bombay or in the Persian Gulf, but the ratio per 1000 (37·5) was much below that for the previous five years (132·45). Tuberculosis shows a slight improvement, the ratios for admission and death being 2·32 and 0·18 compared with 2·68 and 0·27 during the quinquennium; the sick berth staff, with 6·65, and the ships' stewards, with 4·66 admissions per 1000, suffered much more than the other ratings, for seamen the admissions being only 2·37; the least incidence was experienced by the ships' cooks (1·47). The East Indies Station, with an admission ratio of 5·09, suffered much more than any other. Venereal diseases, as already stated, have shown a substantial decrease, and do not now head the list with a larger number of admissions than any other disease. The improvement has been most noticeable in the admissions for primary and secondary syphilis. The total days' sickness from these two diseases has been less by 14,000 than in 1911, due to the use of salvarsan; the invaliding ratio for syphilis has also decreased from 0·89 to 0·69 per 1000. There were 107 cases of poisoning throughout the whole force; 42 of these were due to ptomaines, but no outbreak of any importance is recorded; 22 were due to carbon monoxide, mostly owing to working in coal bunkers. Death from drowning occurred in 79 instances, of which 29 were due to the loss of submarines A 3 and B 2.

The appendix contains an account of some interesting cases of Gunshot Injury in China, by Surgeon D. H. C. Given; Some Observations on X Rays in the Diagnosis of Tubercle of the Lung, by Surgeon R. Connell; Statistical Results of the Use of Salvarsan, by Fleet-Surgeon L. Kilroy; and an account of the Seven-day Fever of Indian Ports, by Surgeon D. A. Mitchell.

Public Health.

REPORTS OF INSPECTORS OF THE MEDICAL DEPARTMENT OF THE LOCAL GOVERNMENT BOARD.

On an Outbreak of Enteric Fever in the Borough of Colne (Lancashire), by Dr. J. R. HUTCHINSON.[1]—This report relates to an outbreak of enteric fever due to milk infection which occurred in Colne, a Lancashire town with a population of 26,000, between Dec. 21st, 1912, and Feb. 1st, 1913. Altogether 74 cases were notified, and 54 houses were affected. Deducting the first case of all and three secondary cases—i.e., those occurring in invaded houses in which illness did not begin for more than a fortnight after the first case, there remained 70 cases which had the implicated milk-supply in common. The age distribution of these cases was as follows:—

1 to 10 years	20	31—40 years	4
11 „ 20 „	16	Over 40 „	8
21 „ 30 „	22		70

Thirty-four were males and 36 females. The daily rounds of the milk dealer in question and the sources from which his milk was obtained were investigated in detail by Dr. Hutchinson and by Dr. W. Doyle, the medical officer of health of Colne, and the source of infection was traced to a particular dairy farm at which a schoolgirl in the farmer's household had been nursed at home on account of illness the true nature of which was not recognised from Dec. 5th, when she first sickened, until the end of the month, when she was regarded as more or less convalescent. She was, however, found still to be ill on Jan. 14th, when she was removed to hospital. Dr. Hutchinson notes as to the opportunities of infection of the milk during this period, that the milk used by the farmer's family was extracted by a jug from the large "kit" in which milk was sent away to the town, and that the same dish-cloth was used for this jug, for other domestic crockery, and for the milking cans. The girl's mother, who conducted these cleansing operations, slept with her sick daughter and attended to all her wants during illness. The report has a useful diagram of cases and a map showing in a striking manner the way in which the invaded houses followed the line of the particular milk distribution. The text of the report forms an interesting narrative, setting out the facts and conclusions in logical order, and leaving no doubt of the thoroughness with which the investigations were conducted at every stage. Dr. Doyle's prompt action in stopping the milk-supply as soon as suspicion was directed to the farm concerned should receive grateful recognition from the inhabitants of the district.

On Conditions of Housing and other Sanitary Circumstances in St. Dogmell's Rural District, by Dr. MORGAN J. REES.[2]—The problem of the derelict country district is just now very prominently before the public in connexion with a host of remedies and panaceas, in nearly all of which the provision of better cottages for the agricultural labourer is aimed at. The social, economical, and industrial features of this question are admittedly complex, and their right solution must depend upon the proper appreciation of the facts as they now are in representative districts. From this point of view Dr. Rees's report on the part of Pembrokeshire contained in the rural district of St. Dogmells is distinctly valuable. It is a large district 15½ miles by 10½, badly served by railways, with a total population in 1911 of 7888—a decrease of 364 on the previous Census. Most of the people live in scattered villages and hamlets, the country has been turned down to grazing for cattle and sheep, and the farm labourer gets low wages, 7*s.* 6*d.* to 12*s.* 6*d.* a week, plus his own food at the farm and a furrow of potatoes. Usually he has to pay his own house rent; as many as 1475 out of the 2297 occupied houses in the district are rented at under £5 per annum. The ordinary cottage is built of flat slaty stone on the bare earth, without foundations or damp-proof courses, the stones of the thick walls being bound together by friable material and showing holes and crevices. They are roofed with similar stone, sometimes without guttering or eaves spouting; the yards about them are usually unpaved, and it is common for them to be built back-to-earth against the hillside. Some contain a single large room only; others contain lofts, used as sleeping-rooms, which are very low and lighted and ventilated (if such terms can be used) only by a small skylight. Dr. Rees gives a detailed description of 12 cottages as typical of a large number, with particulars of the number of occupants, wages, house-room, and cubic space. The description is certainly forbidding, and little exercise of imagination is necessary to realise the unwholesome nature of the accommodation available. In addition, it appears that many of the duties of an active sanitary authority, such as looking after the purity of the water-supplies or the scavenging of the villages, are neglected. The occasion of the inspection is noteworthy; it resulted from the district council inviting the central authorities to take a wide view of the position and ameliorate housing conditions from Imperial funds. Till such aid was given the council practically declined to put in force the provisions of the Housing and Town Planning Act of 1909, either in respect of the systematic inspection of houses required by the regulations made by the Local Government Board under that Act, or in regard to the provision of new dwellings. As might be expected, the Local Government Board was unable to accept the plea, and certainly Dr. Rees's report demonstrates that there is urgent necessity for systematic inspection of houses and the application of the Housing Acts. The district council would command greater sympathy and have better ground for their claims to assistance from the taxpayer if they were to make a serious attempt, however limited, to carry out their statutory duties in sanitary matters. The publication of this report may, and we hope will, enable the local authorities to make a new start on better lines.

[1] Reports on Public Health and Medical Subjects. New Series. No. 84. London: Wyman and Sons, Fetter-lane; Edinburgh: H.M. Stationery Office; Dublin: E. Ponsonby. Price 6*d.*

[2] Ibid. New Series. No. 82. Price 3*d.*

VITAL STATISTICS.

VITAL STATISTICS OF LONDON DURING NOVEMBER, 1913.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING NOVEMBER, 1913.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1913.	NOTIFIED CASES OF INFECTIOUS DISEASE.												DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.	Deaths from all causes.	Death-rate per 1000 living.†
LONDON...	4,518,191	—	2506	744	—	78	1	29	434	3	15	3810	11·0	—	13	13	40	30	7	217	320	0·9	4678	13·5
West Districts.																								
Paddington	142,210	—	78	36	—	1	—	1	15	—	—	131	12·0	—	1	1	3	3	—	9	17	1·6	144	13·1
Kensington	171,284	—	96	20	—	1	—	—	12	—	—	129	9·8	—	—	—	—	—	—	6	6	0·5	159	12·0
Hammersmith	123,745	—	84	6	—	—	—	—	18	—	—	108	11·4	—	—	—	1	—	—	4	5	0·5	111	11·6
Fulham	157,117	—	113	37	—	3	—	3	12	1	—	169	14·0	—	—	—	1	—	—	10	11	0·9	146	12·5
Chelsea	64,598	—	29	7	—	1	—	—	3	—	1	41	8·3	—	—	—	—	1	—	2	3	0·6	70	13·4
City of Westminster	154,810	—	68	19	—	2	—	—	6	—	—	95	8·0	—	—	1	2	—	—	9	12	1·0	149	13·2
North Districts.																								
St. Marylebone	114,532	—	62	8	—	3	—	—	12	2	—	87	9·9	—	—	—	1	—	—	4	5	0·6	117	13·6
Hampstead	86,346	—	25	13	—	—	—	—	3	—	—	41	6·2	—	—	—	—	1	—	2	3	0·5	73	11·6
St. Pancras	214,330	—	46	40	—	—	1	1	18	—	2	108	6·6	—	—	—	1	—	—	10	11	0·7	244	14·8
Islington	325,585	—	228	46	—	4	—	3	19	—	1	301	12·1	—	—	1	3	2	—	18	24	1·0	376	14·7
Stoke Newington	50,518	—	19	10	—	1	—	—	3	—	—	33	8·5	—	—	—	1	1	—	1	3	0·8	53	13·0
Hackney	223,353	—	132	30	—	6	—	2	20	—	1	191	11·1	—	—	—	1	2	1	8	12	0·7	214	12·6
Central Districts.																								
Holborn	46,949	—	21	11	—	1	—	—	3	—	—	36	10·0	—	—	—	2	—	—	3	5	1·4	40	11·1
Finsbury	84,679	—	47	8	—	3	—	1	11	—	—	70	10·8	—	—	1	—	1	—	9	11	1·7	128	19·5
City of London	17,916	—	5	3	—	—	—	—	—	—	1	9	6·5	—	—	—	—	—	—	1	1	0·8	20	15·2
East Districts.																								
Shoreditch	109,654	—	49	22	—	1	—	1	17	—	—	90	10·7	—	2	—	1	2	—	9	14	1·7	143	17·6
Bethnal Green	127,824	—	53	19	—	—	—	1	27	—	—	100	10·2	—	2	—	—	5	—	9	16	1·6	147	15·6
Stepney	275,300	—	79	42	—	9	—	2	29	—	1	162	7·7	—	—	1	1	2	1	17	22	1·0	327	16·2
Poplar	160,913	—	57	34	—	9	—	3	20	—	1	154	12·5	—	—	1	4	2	1	9	17	1·4	189	15·1
South Districts.																								
Southwark	188,487	—	133	26	—	8	—	1	28	—	—	196	13·6	—	2	2	2	1	—	15	22	1·5	234	16·3
Bermondsey	124,739	—	113	19	—	5	—	—	14	—	—	151	15·8	—	2	1	1	—	1	10	15	1·6	142	14·8
Lambeth	297,139	—	223	50	—	3	—	3	29	—	1	309	13·6	—	—	—	3	1	1	14	19	0·8	317	13·6
Battersea	167,464	—	115	19	—	3	—	—	19	—	1	157	12·2	—	1	1	2	—	—	6	10	0·8	159	12·5
Wandsworth	330,395	—	122	43	—	4	—	6	22	—	4	201	7·9	—	—	—	2	2	—	5	9	0·4	246	9·7
Camberwell	261,805	—	195	47	—	4	—	1	27	—	1	275	13·7	—	2	2	3	1	—	9	17	0·8	267	13·1
Deptford	109,280	—	70	31	—	1	—	—	28	—	—	130	15·5	—	—	1	2	—	—	7	10	1·2	115	13·5
Greenwich	96,015	—	39	23	—	—	—	—	8	—	—	70	9·5	—	1	—	—	—	1	3	5	0·7	110	14·7
Lewisham...	168,822	—	83	35	—	4	—	—	5	—	—	127	9·8	—	—	—	2	2	1	6	11	0·8	120	9·1
Woolwich	122,382	—	92	40	—	1	—	—	6	—	—	139	14·8	—	—	—	1	1	—	2	4	0·4	118	12·9
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup. † The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

that the number of persons reported to be suffering from one or other of the ten diseases specified in the table was equal to an annual rate of 11·0 per 1000 of the population, estimated at 4,518,191 persons in the middle of the year; in the three preceding months the rates were 5·4, 7·7, and 10·4 per 1000 respectively. The lowest rates last month were recorded in Hampstead, St. Pancras, the City of London, Stepney, and Wandsworth; and the highest rates in Fulham, Southwark, Bermondsey, Lambeth, Camberwell, Deptford, and Woolwich. The prevalence of scarlet fever again showed an increase over the high numbers recorded in other recent months, and was greater than in any preceding month of the year; this disease was proportionally most prevalent in Hammersmith, Fulham, Islington, Southwark, Bermondsey, Lambeth, Battersea, Camberwell, and Woolwich. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals, which had been 1033, 1610, and 2562 at the end of the three preceding months, had declined to 2323 at the end of last month; the weekly admissions averaged 581, against 258, 402, and 512 in the three preceding months. Diphtheria was slightly less prevalent than in the previous month; the greatest proportional prevalence of this disease last month occurred in Paddington, Fulham, Holborn, Deptford, Greenwich, and Woolwich. The Metropolitan Asylums Hospitals contained 1188 diphtheria patients at the end of last month, against 909 and 1190 at the end of the two preceding months; the weekly admissions averaged 158, against 147 and 184 in the two preceding months. The prevalence of enteric fever showed a slight decline from that recorded in the preceding month; this disease was proportionally most prevalent in St. Marylebone, Hackney, Finsbury, Stepney, Poplar, Southwark, Bermondsey, and Lewisham. There were 72 enteric fever patients under treatment in the Metropolitan Asylums Hopitals at the end of last month, against 37, 56, and 77 at the end of the three preceding months; the weekly admissions averaged 11, against 6, 11, and 12 in the three preceding months. Erysipelas was proportionally most prevalent in Hammersmith, Finsbury, Shoreditch, Bethnal Green, Poplar, Southwark, and Deptford. The 29 cases of puerperal fever notified during the month included 6 in Wandsworth, 3 in Fulham, 3 in Islington, 3 in Poplar, 3 in Lambeth, 2 in Hackney, and 2 in Stepney. Of the 3 cases of cerebro-spinal meningitis, 2 belonged to St. Marylebone and 1 to Fulham; and of the 15 cases of poliomyelitis 4 belonged to Wandsworth and 2 to St. Pancras.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided; the death-rates from all causes are further corrected for variations in the sex- and age-constitution of the several boroughs. During the four weeks ending Nov. 29th the deaths of 4678 London residents were registered, equal to an annual rate of 13·5 per 1000; in the three preceding months the rates had been 11·8, 13·3, and 13·7 per 1000 respectively. The death-rates last month ranged from 9·1 in Lewisham, 9·7 in Wandsworth, 11·1 in Holborn, 11·6 in Hammersmith and in Hampstead, and 12·0 in Kensington, to 15·1 in Poplar, 15·2 in the City of London, 15·6 in Bethnal Green, 16·2 in Stepney, 16·3 in Southwark, 17·6 in Shoreditch, and 19·5 in Finsbury. The 4678 deaths from all causes included 320 which were referred to the principal infectious diseases; of these, 13 resulted from measles, 13 from scarlet fever, 40 from diphtheria, 30 from whooping-cough, 7 from enteric fever, and 247 from diarrhœa and enteritis among children under two years of age. The lowest death-rates from these diseases were recorded in Kensington, Hammersmith, Hampstead, Wandsworth, and Woolwich; and the highest rates in Paddington, Holborn, Finsbury, Shoreditch, Bethnal Green, Poplar, Southwark, and Bermondsey. Only 13 fatal cases of measles were recorded last month, the corrected average number for the corresponding period of the five preceding years being 168; these 13 cases included 2 in Shoreditch, 2 in Bethnal Green, 2 in Southwark, 2 in Bermondsey, and 2 in Camberwell. The 13 deaths from scarlet fever were 11 below the corrected average number, and included 2 in Southwark and 2 in Camberwell. The 40 fatal cases of diphtheria were 14 fewer than the corrected average number, and included 4 in Poplar, and 3 each in Paddington, Islington, Lambeth, and Camberwell. The 30 deaths from whooping-cough showed a decline of 15 from the corrected average number, and included 5 in Bethnal Green and 3 in Paddington. The 7 fatal cases of enteric fever showed a decline of 11 from the corrected average number, and belonged respectively to Hackney, Stepney, Poplar, Bermondsey, Lambeth, Greenwich, and Lewisham. The mortality from diarrhœa and enteritis among children under two years of age was proportionally greatest in Finsbury, Shoreditch, Southwark, and Bermondsey. In conclusion, it may be stated that the aggregate mortality in London last month from the principal infectious diseases, excluding diarrhœa, was equal to only one-third of the average.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Order in Council of April 1st, 1881, Fleet-Surgeon Hugh Winkworth Macnamara has been placed on the Retired List at his own request.

The following appointments have been notified:—Staff-Surgeons: E. M. W. Hearn to the *Pembroke*, additional, for Chatham Hospital, and as Anæsthetist and Radiographer. J. McCutcheon to the *Hazard*; B. Pick to the *Ganges*, additional, for Shotley Sick Quarters; and A. La T. Darley to the *St. George*. Surgeon: C. R. M. Baker to the *Cornwall*.

ROYAL ARMY MEDICAL CORPS.

Surgeon-General W. Babtie, V.C., C.B., C.M.G., Deputy Director-General Army Medical Service at the War Office, has been selected for appointment as Director of Medical Services to His Majesty's Forces in India, in succession to Surgeon-General A. T. Sloggett, C.M.G., honorary surgeon to His Majesty the King.

Colonel W. G. Macpherson, C.M.G., Assistant Director of Medical Services to the Fourth (Quetta) Division of the Southern Army in India, has been selected for appointment as Deputy Director-General Army Medical Service at the War Office. Colonel W. G. Bedford has been selected for appointment as Deputy Director of Medical Services in South Africa, in succession to Surgeon-General O. E. P. Lloyd, V.C., C.B., retiring under the age limit.

Lieutenant-Colonel M. W. Russell, Deputy Assistant Director of Medical Services to the Eastern Command, has been granted leave of absence for one month prior to embarking for Malta for a tour of service. Lieutenant-Colonel G. A. T. Bray, recruiting medical officer at Canterbury, has been selected for appointment as Deputy Surgeon to the Royal Hospital at Chelsea. Lieutenant-Colonel M. P. C. Holt, D.S.O., honorary surgeon to the Viceroy and Governor-General of the East Indies, has been appointed Senior Medical Officer on board the transport ss. *Plassy*, leaving Bombay for Southampton on Jan. 9th, with invalids and time-expired troops.

Major S. A. Archer has been placed under orders to join the Irish Command on Dec. 28th, and on arrival will be appinted to the Belfast District for duty. Major J. E. Hodgson has been transferred from the London District to the Northern Command and appointed Specialist Sanitary Officer at Headquarters, York. Major H. W. H. O'Reilly has been placed under orders for a tour of duty with the Ninth (Secunderabad) Division in India. Major G. St. C. Thom has been selected for appointment as Deputy Assistant Director of Medical Services to the Lowland Division vice Major W. D. Erskine. Major B. F. Wingate has joined the London District. Major M. Swabey and Major H. K. Palmer have been detailed for duty on board the transport s.s. *Rewa*, which left Aden on Dec. 15th. Major E. W. Slayter has been directed to join the Irish Command on Jan. 12th for duty in the Cork District. Major A. W. N. Bowen has been appointed to the Belfast District. Major W. M. Power has been selected to hold charge of the Military Families Hospital at Chatham. Major J. F. M. Kelly has been granted six months' leave of absence from Colchester on medical certificate. Major G. A. Moore has been selected for appointment as Specialist in Otology and Laryngology to the Aldershot Command. Major J. H. Campbell, D.S.O., has been selected for appointment as Medical Inspector of Recruits to the Eastern Command. Major P. S. O'Reilly has been appointed to the Royal Arsenal at Woolwich.

Captain H. B. Connell has been appointed to Shrewsbury. Captain A. S. Arthur has been transferred from Liverpool to Wrexham. Captain A. W. Howlett has been appointed to the Military Hospital at Bareilly Cantonment. Captain G. F. Rudkin has joined at Dublin. Captain W. E. C. Lunn has been detailed for duty on board the transport s.s. *Dongola* to leave Karachi for Southampton on Dec. 19th. Captain H. J. Crossley has embarked for a tour of service in India. Captain N. E. J. Harding has joined the London District for duty. Captain R. C. Fellowes has been transferred from Omagh to the Military Hospital at Holywood and appointed to hold medical charge of the 1st Norfolk Regiment. Captain J. A. W. Webster has been placed under orders for a tour of service with the Fifth (Mhow) Division of the Southern Army in India. Captain A. E. S. Irvine has joined the Royal Army Medical College on transfer from the Belfast District. Captain F. L. Bradish on return home from Jullundur Cantonment, tour expired, has been appointed to the Military Hospital at the Curragh. Captain T. W. Browne has taken up duty in the Cork District. Captain R. H. MacNicol has been placed under orders to embark for service in Malta. Captain J. L. Wood has joined the Northern Command. Captain M. Keane has been placed under orders to proceed to India for a tour of service. Captain G. S. Wallace has been appointed to the Military

Hospital at Bellary Cantonment, Madras. Captain A. M. Rose has been transferred from the Military Hospital at Bordon to Longmoor. Captain G. H. Rees has taken up duty at Londonderry on transfer from Ballykinler. Captain G. P. A. Bracken has been appointed to the Northern Command on return home from Malappuram Cantonment. Captain F. C. Lambert has been placed under orders for a tour of duty with the Sixth (Poona) Division of the Southern Army in India. Captain A. L. Otway has been appointed Specialist Sanitary Officer to the Southern Command. Captain J. du P. Langrishe has been appointed for duty at Spike Island, Queenstown, on arrival home from Kirkee Cantonment. Captain L. A. A. Andrews has been transferred from the Military Hospital at Cork to the Northern Command for duty at York. Captain C. W. Holden has been appointed for duty to Queen Alexandra Military Hospital at Grosvenor-road, S.W. The following Captains have joined the Royal Army Medical College for the courses of instruction for promotion to the rank of Major: G. B. F. Churchill (Bulford), H. E. Priestley (Tidworth), H. Stewart (Halifax), J. S. Dunne (Woolwich), A. S. Littlejohns (Dublin), W. Egan (Curragh), and A. S. Williams (Kilbride).

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel S. E. Prall, health officer to the Port of Aden, has been granted leave of absence home. Lieutenant-Colonel R. Bird, M.V.O., C.I.E., has returned to India from leave of absence home. The services of Lieutenant-Colonel T. E. Dyson have been placed at the disposal of H.E. the Commander-in-Chief in India. Lieutenant-Colonel P. B. Haig has been granted two years' furlough and combined leave of absence home from India. Lieutenant-Colonel R. G. Turner has been transferred from Naini Tal to Moradabad and appointed Civil Surgeon. Lieutenant-Colonel J. Penny has been granted four months' extension of leave of absence home from India on medical certificate.

Major W. G. Richards has joined at Salem. Major A. F. W. King has been appointed by H.E. the Governor of Bombay to officiate as Civil Administrative Officer at Aden. Major E. C. Macleod has been selected for advancement to the rank of Lieutenant-Colonel. Major W. E. McKechnie, civil surgeon at Etawah, has been granted two years' furlough combined with general leave of absence home from India. H.E. the Governor of Bombay has selected Major F. H. G. Hutchinson on return from leave of absence for appointment as Sanitary Commissioner to the Bombay Presidency, in succession to Lieutenant-Colonel T. E. Dyson. Major W. G. Hamilton has been appointed Superintendent at the Alipore Central Jail during the absence on leave of Major F. S. C. Thompson. Major R. P. Wilson has been transferred to Calcutta and appointed Superintendent at the Campbell Medical College, Calcutta. Major T. McGilchrist has been appointed to officiate as Civil Surgeon at Rampore Boalia.

Captain H. M. H. Melhuish has arrived home on leave of absence from India. Captain N. M. Wilson has taken up duty at Dera Ghazi Khan. Captain G. L. C. Little has been granted four months' extension of leave of absence home from India on medical certificate. Captain M. D. A. Kureishi has been appointed to officiate as Civil Surgeon at Aden in succession to Major A. F. W. King. Captain W. S. Nealor has been placed on special deputation to the X ray Institute at Dehra Dun for a course of instruction. Captain M. White has been appointed to hold collateral charge of the Civil Surgeoncy in the Shwebo District during the absence of Captain W. S. Nealor. The services of Captain O. A. R. Berkeley Hill, officiating superintendent of the Punjab Lunatic Asylum, have been replaced at the disposal of the Government of India in the Home Department on relief by Lieutenant-Colonel J. Ewens on return to duty from leave of absence. Captain E. P. Wernicke, on special duty at Pachmarhi, has been posted to the Seoni District as Civil Surgeon and appointed to the executive and medical charge of the Seoni Jail. Captain R. F. Hebbert has been granted two months' extension of leave of absence home from India. Captain R. E. Flowerdrew has been appointed to officiate in the Jail Department in Madras.

Lieutenant C. M. Plumptre has been appointed to officiate as Agency Surgeon in Bhopal State.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Cadet-Corporal Samuel Griffin, from the Royal College of Surgeons in Ireland Contingent, Officers' Training Corps, to be Lieutenant (on probation) (dated Nov. 21st, 1913).

TERRITORIAL FORCE.

Royal Army Medical Corps.

Major Thomas C. MacKenzie, D.S.O., Royal Army Medical Corps, is appointed a Deputy Assistant Director of Medical Services of a Territorial Division (dated Nov. 5th, 1913).

Captain William George Maydon, Royal Army Medical Corps, to be an Adjutant of a School of Instruction, vice Major William M. H. Spiller, who vacates that appointment (dated Nov. 12th, 1913).

1st East Lancashire Field Ambulance, Royal Army Medical Corps: Lieutenant Albert Ramsbottom to be Captain (dated Nov. 14th, 1913).

3rd East Lancashire Field Ambulance, Royal Army Medical Corps: Lieutenant Edward H. Cox to be Captain (dated Nov. 14th, 1913).

1st Northumbrian Field Ambulance, Royal Army Medical Corps: Captain Frank Hawthorn to be Major (dated Dec. 13th, 1913).

2nd West Riding Field Ambulance, Royal Army Medical Corps: Robert Garside Dixon to be Lieutenant (dated Nov. 1st, 1913).

3rd Welsh Field Ambulance, Royal Army Medical Corps: Lieutenant William A. T. Lloyd resigns his commission (dated Dec. 13th, 1913).

Attached to Units other than Medical Units.—Captain John G. Martin to be Major (dated Oct. 26th, 1913). Lieutenant Noel W. Kidston to be Captain (dated Nov. 1st, 1913). Lieutenant James W. McIntosh resigns his commission (dated Dec. 13th, 1913).

For Attachment to Units other than Medical Units.—William George to be Lieutenant (dated Dec. 13th, 1913). Captain Lionel H. Moiser resigns his commission (dated Dec. 10th, 1913).

TERRITORIAL FORCE ASSOCIATION OF THE COUNTY OF LONDON.

According to the annual report of Colonel Valentine Matthews, the County Director of the London Voluntary Aid Detachments, 79 detachments, with a *personnel* of 2230, were registered on Sept. 30th. This shows a slight increase for the year, although four detachments have been disbanded. The work done seems to have been distinctly progressive and encouraging. With regard to a recent War Office regulation to the effect that a medical officer and a pharmacist may be included in the establishment of a Women's Voluntary Aid Detachment, provided only women holding those qualifications are enrolled, this will, in the opinion of Colonel Matthews, impede rather than assist the development of the scheme of voluntary aid. He hopes that the restriction as to sex will be rescinded. He also expresses the opinion that the county director and commandants of detachments should be brought into closer unofficial relation.

STAFF TOUR FOR MEDICAL SERVICES.

Arrangements have been made by the Commander-in-Chief in Ireland to hold a Medical Staff tour under the direction of Surgeon-General L. E. Anderson, C.B., Deputy Director of Medical Services, Irish Command. The following officers have been selected for appointment on the directing staff:—Colonel R. H. S. Sawyer, Assistant Director of Medical Services to the Dublin District; Lieutenant-Colonel H. B. Williams, D.S.O., General Staff; Lieutenant-Colonel C. Dalton, Deputy Assistant-Director of Medical Services, Irish Command; Major J. H. Brunskill, specialist sanitary officer, Dublin District. Attached: Lieutenant-Colonel E. F. Taylor, Army Service Corps; Major W. Trail, Royal Engineers; and Captain G. Harding, Army Service Corps. Royal Army Medical Corps officers taking part in the tour are: Colonel H. M. Sloggett, Lieutenant-Colonel H. D. Rowan, Majors H. S. Thurston, S. G. Butler, N. J. C. Rutherford, A. W. A. Irwin, and F. P. Lauder, and Captains H. B. Kelly and T. H. Gibbon.

Colonel J. J. Pratt, I.M.S., has been appointed surgeon to the Seamen's Hospital Society (Dreadnought) with duties at the Albert Dock Hospital, to which is attached the London School of Tropical Medicine.

LITERARY INTELLIGENCE.—In a few days' time Messrs. J. and A. Churchill will publish the Medical Directory for 1914. In the year 1844 Mr. John Churchill, the grandfather of the present partners of the firm, issued the first of the series of volumes destined to occupy a permanent place on the shelves of so many practitioners. To celebrate its seventieth birthday the publishers have printed all names and addresses in black type. It is believed that this will arrest the eye and facilitate the work of ready reference.—Messrs. George Routledge and Sons announce the forthcoming publication in January, 1914, of a "Handbook of Photomicrography," by H. Lloyd Hind, B.Sc., F.I.C., and W. Brough Randles, B.Sc., lecturer in biology, Derby Technical College, containing an account of the modern methods employed in photomicrography, with a description of the apparatus and processes used in the photography of small objects, from natural size up to the highest magnifications, stereoscopic photomicrography, cinematomicrography, and colour photomicrography.

MEDICAL PRACTICE UNDER THE INSURANCE ACT.

(BY OUR SPECIAL COMMISSIONER.)

(*Continued from p. 1721.*)

XXXI.—THE STRUGGLE IN WALES BETWEEN THE PANEL AND THE INSTITUTIONS.

THE possibility of withholding from panel service has hardly been entertained in the South Wales and Monmouthshire industrial and mining districts. In the mining villages private practice is regarded as possibly bringing in from £10 or £15 a year, and its chances are almost disregarded. The practitioner lives by contract work, and what little private practice there used to be is rapidly disappearing. In this respect a very important economic revolution is taking place which may alter the commercial conditions seriously. The individual or private tradesman is disappearing. The substantial grocer who could afford to pay fees to his medical attendant is everywhere being replaced by the salaried manager of some coöperative store or the representative of a big firm or company that has branch shops all over the district. Instead of dealing with independent tradesmen the medical practitioner has to deal with the employees of these great trading concerns, whose salaries do not reach the income-tax limit. These poorly paid shopmen cannot consult independent practitioners; they are themselves insured. This means a change in the money distribution of the country, converting the independent inhabitants of whole districts into persons employed for wages. In itself this is a very serious social and economic revolution, and its effect on independent medical practice has been disastrous. Some 20 years ago these "multiple shops," as they are called, were unknown in, for instance, the Rhondda. Now they abound on all sides, so that the private tradesman is a distinctly rare character. Already private practice is so scarce that many medical men have lost the habit of keeping accounts; some of them might get more from the private practice which they actually do if they remembered more accurately all visits for which they ought to send in bills. In such circumstances it was useless to expect the South Wales colliery doctors to go on strike against the Insurance Act. They disliked certain of the proposals of the measure, and many thought it would be found in practice that the old poundage system paid better than the new scheme; but the representatives from South Wales always warned the British Medical Association that whatever resolutions were passed a large number of practitioners would nevertheless be obliged to go on the panel. It was only at Cardiff, where there is some private practice, that a difficulty arose in forming the panel.

But with the purely rural practitioners of South Wales and Monmouthshire, as distinct from the colliery surgeons, the conditions are different, and there is not the same necessity to join the panel. Therefore, preparations were made to send down two medical men for whole-time service in Monmouthshire, but the practitioners of the industrial districts undertook to help the rural practitioners in the question of mileage or the difficulty of calls to long distances, and both parties ultimately agreed to follow the same policy—to go on the panel and there support each other.

Negotiations for the Dependents.

In the Eastern Valley, Monmouthshire, representatives of the workmen asked the local practitioners to state their terms for the dependents. The latter replied that there should be a poundage of 2½*d.* instead of 3*d.* as formerly. For reasons already explained 2*d.* may be thought enough; but the argument was brought forward that the 7*s.* from insured persons did not cover the 10*s.* 6*d.* for confinements and abortions, major surgery, &c. The medical men further asked that the question of numerous certificates should be considered. Formerly the men belonged to one club and only needed one certificate. Now they had two or three clubs, and there were the certificates for compensation and accidents, and these had to be renewed every week the patient was invalided. Also a patient must take a note to his works when he returns to show that he was legitimately entitled to be absent; thus five or six certificates are sometimes needed, while under the system prevailing before the Act only one certificate was necessary. All this takes up much time. Then the wife will come round for a certificate so as to keep her child from school. A practitioner has thus urgent need to employ a clerk. The doctors further submitted the question of strikes, during which period they had to do all their work gratuitously. During the last great strike some of the colliery doctors in the North of England were paid, but in Monmouthshire and South Wales not a penny was received.

When these points were submitted the men would not agree to any of them. The doctors thereupon withdrew the question of certificates and of strikes, and the men's representatives then replied that if the doctors would be content with a poundage of 2*d.* they would strongly advise the acceptance of the terms. The doctors surrendered the halfpenny, and their patients were warm in their thanks at first for the concession. But later they thought of another and a new point which they wanted the doctors to concede. It was that the money, collected according to the poundage system by the clerk or wage payer at the works, should be sent, not to the doctors to whom it was due, but to the workmen's committee. The men offered to hand over the cheque in full to the doctors, but if they were not going to take any of the money why should they have the cheque? This seemed to be an intention to acquire a hold over the doctors of an illegitimate and dangerous kind, and the medical profession absolutely refused to allow it. For the sake of harmony they had proved their readiness to make a considerable financial concession, and had in other ways shown a wish to be friendly, but the members of a highly trained profession could not place themselves at the beck and call of a workmen's committee to the extent that such a power over the purse as was desired would give.

Refusal to Serve Workmen's Committees.

Very similar negotiations took place in South Wales. At Briton Ferry and Neath representatives of the medical profession and of the workmen met to arrange terms for attendance on the uninsured, as, according to the policy of the British Medical Association, notice had been given to terminate all contracts by Jan. 15th, 1913. Here the men had substituted a flat rate of 3*d.* a week for all workers, married and unmarried, and their dependents. After the Act the doctors asked for 10*d.* for four

weeks instead of the shilling paid formerly. This was met by saying that the single men, being now insured, refused to make any other payment, and the men wanted to fix a price for the families only. The doctors then asked the lowest figure approved in one of the public medical service propositions formulated by the British Medical Association—namely, 1*s.* 4*d.* per month per family. These terms might have been accepted, but the men insisted that the doctors should work under the control of a committee elected by the working men, and all the money was to go through the hands of this working man's committee. A deadlock ensued. The doctors did not consider that such a committee possessed the right or the capacity to secure such control.

A certain number of influential working-class men and leaders thereupon set to work to form schemes; and, unfortunately for them and all concerned, were encouraged in their course by the Welsh Commissioners. Thus at Briton Ferry, as early as March this year, the local trades and industries formed a committee. After holding several meetings at different works and electing representatives this committee called itself the Briton Ferry Workmen's and General Institution for Medical and Surgical Treatment. They were recognised by the Insurance Committee as a system under Section 15, Clause 3. They began to provide medical aid on April 15th—that is, three months after the Act had come into force—though Clause 4 of the same section of the law only recognises systems that were in existence before the adoption of the Act. To the lay mind this all seems highly irregular, but I do not attempt to decide upon what the legal discretions of an extraordinarily powerful public department may be.

Disastrous Effect of Schemes under Clause 3.

The managers of the Briton Ferry scheme advertised for doctors and appointed two whole-time men, one at £350 and the other at £250 a year. They claim to have about 2000 insured persons as members, and at 9*s.* this represents £900, a part of which sum comes from the British taxpayer—i.e., from the entire community, yet it is allowed to go into the coffers of a private and uncontrolled association or enterprise. The medical men must also attend on the dependents of the insured. The association tries to get 1*s.* per month for every family, but whether it succeeds or not the medical staff get no extra pay for attending on the families. It provides the surgery and the drugs, but does not house the medical officers. The scheme receives under the Act £900 a year for 2000 insured persons, and pays £600 a year to the medical men for attending to a population that includes the dependents on the insured. The total population of Briton Ferry now amounts to close upon 9000 persons, and of these 3000 are insured. As the scheme takes over 2000 of the insured with their dependents, it provides medical aid to two-thirds of the entire population. There is therefore only one-third of the population remaining for the panel doctors. Formerly there were two panel doctors who each employed an assistant. These two local practitioners with their assistants attended to the entire population of 9000. Now that the scheme has taken away from them two-thirds of their panel practice, they have lost much of their income, and have been compelled to dispense with the services of their assistants.

This is a good illustration of the devastation these institutions may bring about, and there are seven such schemes in Glamorganshire, though fortunately they are not proportionately as mischievous. Nowhere has the individual practitioner and panel doctor been hit so hard as at Briton Ferry, and I am extremely glad to have been able to investigate the situation on the spot. Close to, at Neath, a similar system was started, but though they have to deal with a larger population they only employ one medical officer and have not secured more than 1000 insured persons as members. At Port Talbot, likewise close at hand, a system was attempted, but notices were issued to the medical profession with the result that no one applied for the post of medical officer. It is indeed surprising that these schemes are able to recruit any sort of medical staffs. Larger incomes than any salaries which such organisations will ever offer can now be easily obtained in highly reputable positions, and the contracting-out institutions will have only themselves to thank if they find that they secure inferior service. Good service can command better pay. I cannot attempt to explain why medical men with good reputations should accept a salary of £250 a year from an institution when, if they went on the panel in a populous district of an industrial centre where the panel is not overstocked, they would soon make much more, while preserving their professional position and independence. Nor is it easy to understand why workmen and their families join such schemes and run the risks attached to them. As a matter of fact, many workmen have found out their mistake and are very anxious to leave the schemes to which they belong and return to their old works doctors who are now the panel doctors. Many medical practitioners have expressed the opinion that by the mere force of superior merit the panel doctors could beat the institutions out of the field if there was fair play and if no underhand pressure was brought to bear on the public. The view has certainly a substantial foundation. In the Eastern Valley, for instance, I found that one single practitioner had a hundred transfers from members of the local scheme; but no one knows how many transfers there may be from panel doctors to this and other schemes. Many practitioners protested to me that these schemes would not be successful but for the unfair pressure exercised on ignorant or indolent people, and which has become possible because of the attitude of the Welsh Commissioners.

The Resistance against the Institutions.

In the Eastern Valley a scheme has been working since May, and its promoters are lucky in having, as yet, no scandalous breakdown to explain. The absence of epidemics has been fortunate for them, but even in quiet times some startling complaints have been made. At Blaenavon there is a scheme that absorbs three-quarters of the entire population, so the panel doctors and chemists are hit very hard. This scheme has imported six medical men, and, one having left, is now employing at fixed salaries five doctors to do the work which has been taken away from the 11 old-established local practitioners. In urgent or serious cases some of the insured members of this scheme have returned to their old doctors and paid full fees. When asked why they had joined the scheme they replied they had been compelled. They feared they might be persecuted if they refused. Now this sort of thing is entirely contrary to the spirit of the Act, and defeats every clause, section, and regulation devised to secure the best medical

attention by the best available man for the insured public. A notice should be put up in all the collieries and works to the effect that the employed are free to select their medical adviser and that they run no risk of losing their employment if they exercise this freedom. The local practitioners are demanding fair play, and even under the present conditions of pressure the workmen are leaving the institutions and the imported medical officers to return to their old doctors, with whom they have had life-long friendly relations and whom they have learnt to trust. The majority of the working men never wished for any change, and many, though belonging to these working men's organisations, consult their old doctors and pay them full fees.

The rise of these institutions has been very simple. Their secretaries get a wholesale supply of transfer forms and fill in the names. Protests have been made that this is occasionally done without the consent of the persons concerned. Letters to this effect were sent to the Insurance Committee of Glamorganshire and to the Welsh Insurance Commissioners. The former body replied that there was not much in the complaint, and were then told there were several witnesses ready to testify. To this an answer was given that an investigation would be made; but though this was said last July, nothing has been done. It is maintained that several persons have been transferred to schemes without their knowledge. The authorities seem to help insured persons to join the institutions, but make it difficult for them to return to the panel doctors; thus they appear to use their influence against the interests of the Act and of the general public. If an insured person desires to leave an institution he must draw up and send a written notice according to the rules of the institution in question, but if he wishes to transfer from his panel doctor to an institution he is not obliged to write out some special notification.

Fortunately, there is an easy means of putting an end to all these grievances. As indicated in my previous article, the example given by the staff of the Swansea General Hospital must be followed throughout the country. When members of these institutions or schemes find that they will be refused advice or admission at the hospitals there will be a general stampede of membership. The conspiracy to defeat the Act by allowing collectivities to contract out of the Act will fall to pieces, and the patients will be restored to the panel doctors.

(To be continued.)

UNIVERSITY OF BRISTOL: LONG FOX LECTURE.—The eighth of this series of annual lectures was delivered recently in the Physiological Theatre by Dr. F. H. Edgeworth, who chose as his subject the Motor Nuclei and Muscle-sensory Fibres of the Cranial Nerves. He described various ingenious experimental and other investigations by which he had been enabled to prove the presence of this type of fibre in the facial and other cranial nerves; researches which, with those of other workers, had proved or shown probable the existence of such fibres in all the cranial nerve-supplying muscles. The second part of his lecture dealt with the classification of the motor centres in the pons and medulla, showing that the usual division into a central somatic and a lateral splanchnic group is not strictly justified, since the lateral group contains somatic as well as splanchnic nuclei. Considering the abstruseness of the subject, the lecture was remarkably lucid, a result to which some excellent diagrams contributed largely. Sir Felix Semon, who was among the audience, congratulated the lecturer, adding some comments as to the innervation of the laryngeal muscles.

Home and Foreign Notes.

(FROM OUR OWN CORRESPONDENTS.)

LIVERPOOL.

Tuberculosis Scheme.

LIVERPOOL, I believe, has the honour of being the first city to formulate a complete scheme for the prevention and treatment of tuberculosis. The scheme has been approved by the Local Government Board and the Insurance Commissioners. The objects of the scheme have been tabulated as follows:—

1. That it should be available for the whole community.
2. That those means which experience has proved to be most effective should be adopted for the prevention of the disease.
3. That a definite organisation should exist for the detection of the disease at the earliest possible moment.
4. That within practical limits the best methods of treatment should be available for all those suffering from the disease.
5. That concurrently with the measures for prevention, detection, and treatment, provision should be made for increasing the existing knowledge of the disease and of the methods for its prevention, detection, and cure by way of research.

There will be a temporary central dispensary at the Consumptive Hospital, Mount Pleasant; a south dispensary at 4, Dingle Hill; and a north dispensary at 330, Netherfield-road North. Nursing of insured persons and their dependents receiving domiciliary treatment has been undertaken by the Queen Victoria Nursing Association. The Jewish board of guardians have agreed to provide institutional treatment for members of their community at the Daneswood Sanatorium, Woburn Sands, Bedfordshire. The hospital beds that are available or that are contemplated are at the corporation sanatoriums, Parkhall, 200; Fazakerley, at present 80, to be ready soon 350. At voluntary institutions: Kingswood Sanatorium, Delamere, 40; the Chest Hospital, Mount Pleasant, 30; Royal Southern Hospital, 26; Northern Hospital, 28; the Royal Infirmary, 20; the Stanley Hospital, 10; the Infirmary for Children, 12; the Children's Convalescent Home, West Kirby, 50; the Country Hospital for Children, Heswall, 53; Sanatorium for Children, Leasowe (building), 100, increasing to 200; the Children's Rest (not stated). The Local Government Board are prepared to make grants to the council in accordance with the recommendation of the Departmental Committee: for dispensaries four-fifths of the amount required for the provision and equipment, provided that this sum does not exceed £1 per 750 population, or an average of £240 per dispensary; for additional sanatorium beds for adults three-fifths of cost per bed, provided the total sum contributed out of Government does not exceed an average of £90 per bed; the grants for other beds have not yet been fixed. The approximate annual cost of the scheme is close on £40,000 per annum, the largest part (£25,000) being for 350 beds for pulmonary consumptives, £6500 for 200 beds for tuberculous children, 40 beds for tuberculous adults at voluntary hospitals £2860, and the three dispensaries £2550. This expense will be defrayed by a grant from the Insurance Committee £8250, from the Treasury £15,580, and from the rates £15,580, so that the rates will be increased by about £7580, as £8000 is already being expended. The increase is equivalent

to ½d. on the rates. In connexion with this scheme it is proposed to make alterations at the Fazakerley Hospital by removing the present small-pox beds to a new building. These beds will become available for tuberculosis patients.

Wigan Medical Society.

This society held their biennial dinner on Dec. 11th, under the presidency of Dr. J. T. Shirlaw. Over 30 members and guests spent a very pleasant evening together. The guests included Dr. H. Briggs, Mr. W. Thelwall Thomas, Dr. J. Hay, Dr. A. G. Gullan, Dr. Forbes (representing the Liverpool Medical Institution), and Mr. A. A. W. Merrick (representing the St. Helens Medical Society).

Dec. 16th.

SCOTLAND.

Medical Treatment in Scottish Schools.

REGULATIONS under which grants in respect of the medical treatment of necessitous school children during the period extending from Feb. 1st to Dec. 31st, 1914, will be made by the department were recently issued by the Scotch Education Department. It is pointed out that the treatment contemplated does not extend to the provision of medical attendance in cases of accident or of a casual or serious illness, nor does it extend to the provision of education and maintenance on behalf of blind or deaf-mute children, or those defective mentally, or epileptic. It would, however, cover cases of defective vision, defective teeth, and similar ailments which may be said to affect the general health or, at any rate, the educative capacity of the child. The department also require that, except in circumstances of very special difficulty, all treatment shall be given by fully qualified specialists or general practitioners, according to need. The department will also be prepared to consider the question of making grants for open-air schools for children suffering from tuberculosis or other ailment requiring open-air treatment.

Indian Students at Edinburgh Medical School.

At a public meeting held in Edinburgh recently, which was attended by over a hundred Indian students, hostile sentiments were voiced towards the newly formed subcommittee of the Advisory Council, which is to inquire into "any and all grievances which Indian students may have to bring forward, whether against educational or any other institutions of this country (including the Bureau for Information at 21, Cromwell-road, London)." The following resolution was carried by the meeting:—

That this meeting of Indian students in Edinburgh, finding that Indian students have no special grievances apart from those which they may have as members of the University equally with students of other nationalities, resolves that no useful purpose would be served by placing such grievances before the subcommittee of the Advisory Council appointed by the India Office; and are convinced that their interests will receive in the future, as they have done in the past, the sympathetic attention of the University and other educational authorities.

Tuberculous Patients in Edinburgh Poorhouses.

At a statutory meeting of the parish council held on Dec. 8th the question of the treatment of patients with pulmonary tuberculosis in their wards was dealt with, and a report dealing with this subject during a period of the last three years was read. The advisability of compulsory retention until non-infectivity was established was strongly advocated, and the small percentage of cures—only 1 per cent.—was explained by the fact that practically all the cases were advanced ones, and that many of these were in and out of the wards over long periods, one patient being admitted as often as 43 times. A certain number of the beds available for phthisical cases at the Craiglockart poorhouse are now to be under the charge of the public health authorities, and thereby their available beds for earlier cases will no doubt be considerably augmented.

Local Government Board and Typhoid Fever in Aberdeen.

At a recent meeting of the public health committee of the Aberdeen town council a letter was read from the Local Government Board stating that the Board had had under consideration the report of Professor Matthew Hay, medical officer of health, on the outbreak of typhoid fever in the city of Aberdeen during the autumn of 1912. The Board draw the attention of the local authority to Dr. Hay's conclusions, and inquires what action the local authority have taken or what measures they propose to take in order to safeguard the purity of the city's water-supply. The letter was referred to the water committee, who had replied that steps have been taken by the committee with regard to the liming and filtration of the water-supply. The committee also detailed the larger scheme now under review.

Dec. 18th.

IRELAND.

School Dental Clinics.

THE Commissioners of National Education have notified school managers and teachers of the facilities now available for the dental treatment of school children. Schemes for the dental examination and treatment of pupils may now be submitted to the Commissioners, who are empowered to bear half the expense. Though successful schemes are working in a few areas, the Commissioners still have a considerable sum of money at their disposal, and they are anxious that it should be utilised before March 31st, 1914. In the absence of a general scheme of medical inspection, which the Commissioners would like to see established, the care of the teeth of the children is an essential of all school hygiene.

Scarlet Fever in Belfast.

The scarlet fever outbreak here shows no signs of lessening, and on Dec. 11th, it was reported that for the week ended Dec. 6th 84 cases had been notified, which is an increase of 17 on the previous week. At one end of the city a local outbreak of the disease has also occurred, it is said, by milk conveyance. The public are becoming very uneasy as the epidemic continues without abatement, and the public health committee have asked their officials if they can suggest any means to stop it. As a result, two medical men have been appointed to visit the primary schools to examine the children, and already they have detected many mild cases that had not been noticed or reported, some in the stage of desquamation. Another suggestion should be acted upon, and that is to appoint one or two assistant medical officers of health, as it is impossible to expect one officer of health to look after a city with a population estimated at the middle of 1913 as being

396,000. For instance, if there is any suspicion about a dairy being the vehicle by which typhoid or scarlet fever is conveyed, it is useless to send ordinary inspectors to investigate the question. They do their very best, and no doubt collect useful information, but they have not the right knowledge of the behaviour of disease. What is wanted is young medical men with a knowledge of the latest laboratory methods, and who have had practical experience as house physicians in some good fever hospitals. The public of Belfast have a feeling that the public health administration will have to go a little more with the scientific progress of the day, and that it is really no excuse for the existence of a gradually increasing epidemic of four years' duration to say, "We can do nothing; we are only like other cities in this respect."

Sanatorium Benefit in Ulster.

The Sanatorium Committee of County Down had almost completed arrangements to have a sanatorium erected at Killynether, a beautiful situation about three miles from Comber, but the plan has fallen through. The County Tyrone county council have adopted a scheme by which two convalescent homes and dispensaries are to be erected in towns in the county, each to contain a dispensary, waiting-room, and eight beds, with accommodation for staff, at an approximate cost of £800; also the provision of six sleeping shelters to cost £25 each. It is also suggested that a surgeon-dentist be appointed and that tuberculosis dispensaries be opened in Strabane, Omagh, Dungannon, Cookstown, and Clogher. It is left optional to the Sanatorium Committee to select a suitable site for a sanatorium to contain 20 beds. It is roughly estimated that the expenses of this scheme will be £2886 annually.

Dec. 15th.

PARIS.

Decrease of Vaccination in France.

THE chief of the vaccination institute at the Académie de Médecine de Paris, as the result of an examination of the French vaccination statistics for some years past, finds that vaccination is decreasing in many of the departments. The legally prescribed revaccinations are but little attended to save when there occurs an occasional epidemic; but there is a remarkable diminution in the primary vaccinations in infancy which the law demands, notwithstanding the numerous affairs of life in which citizens of either sex cannot escape the demand for the production of a vaccination certificate—such as entry to private or public schools, service in the army, admission to any administrative office, and so forth. Nevertheless, many folks manage to escape it, rather through negligence than from any considered antivaccination ideas, for there are few antivaccinators in France. Notwithstanding that every child is required by law to be vaccinated in infancy numbers of conscripts join their regiments who have never been vaccinated. They are at once vaccinated, of course, by order of the medical officer. M. Camus's statistics show a lessened vaccination rate throughout France. Primary vaccination, though increasing for the large cities like Paris, Lyons, Lille, Bordeaux, and Marseilles, is diminishing in 60 departments. Last year in only 38 departments was there a diminution as compared with the preceding year. It is true that the number of cases of variola continues to diminish yearly, the reason being doubtless that in consequence of the severe epidemic of 1907 almost the entire population got vaccinated in a panic, the acquired immunity from which still persists. But it is to be feared that if any great movement of the population should take place, as, for instance, a military mobilisation, the disease would reappear. M. Camus calls on the Government, therefore, to keep closer watch on the regular and continued administration of the law.

An Uncommon Intestinal Parasite.

Professor Blanchard has reported to the Académie de Médecine the sixth case noted in France (the sixty-seventh in scientific literature) of infection by the dipylidium caninum. The present case occurred in an infant 7½ months old. The organism is parasitic in the dog, from which it is conveyed by fleas, through milk and other foods which they frequently contaminate. This kind of tænia, which seems to cause infection more frequently now than formerly, gives rise to an ensemble of symptoms among which epileptiform attacks predominate.

Alopecia of Dental Causation.

Dr. Jacquet has long been a believer that alopecia is a trophoneurosis of purely reflex and non-parasitic origin, and has reported many observations in which when the alopecia coincided with dental lesions the cure of the latter has been accompanied by the disappearance of the former. He has now added a very curious case which possesses almost the weight of a physiological experiment. A lady had periodontitis. The tooth was loose in its socket, and each time it was moved she immediately felt a sharp pain in the left parietal region, always at the same spot. One day she had the tooth removed, and almost immediately a patch of alopecia appeared exactly at the spot where the pain used to manifest itself. This patch did not last long, but underwent a spontaneous cure.

A New Culture Medium for the Gonococcus.

M. Auguste Lumière and M. Jean Chevrotier have brought before the Académie des Sciences a new culture medium for the gonococcus. It consists of 6 grammes of albumin in a litre of beer wort. This is put into the autoclave at a temperature of 115° C., filtered, rendered alkaline, and sterilised afresh at 110° C. for 10 minutes. It is improved by the addition of 1½ c.c. of horse or ass serum to 15 c.c. of wort, though this is not essential. With this liquid it has been possible to obtain cultures from pus taken at the hospital in the morning and left for some eight hours at ordinary temperatures, then sown without reheating. The culture shows itself fertile next day, after a night passed in the *étuve*. This discovery is interesting in view of the production of antigonococcic vaccines. The fact from which this process was developed—viz., that beer favours the development of the gonococcus—is in line with the well-known fact that the ingestion of beer in a person infected with the gonococcus increases the intensity of the urethritis.

Death of Dr. Empis.

Dr. Empis, to whom reference was made in this column last week, has just died. He was the *doyen* of the Académie de Médecine. He had been *médecin des hôpitaux* of Paris, professor *agrégé* of the Faculty of Medicine, and President of the Academy in 1883. His name is associated with some remarkable studies on acute miliary tuberculosis, of which he has left a classical description.

Dec. 15th.

Obituary.

SYDNEY JONES, M.B. LOND., F.R.C.S. ENG.,

CONSULTING SURGEON TO ST. THOMAS'S HOSPITAL; LATE MEMBER OF THE COUNCIL OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

WE have already recorded the death of Mr. Sydney Jones, which took place on the morning of Dec. 7th, in his eighty-third year. For some years he had given up the practice of his profession and lived in comparative retirement, seldom visiting away from his own circle of relations. As increasing years brought various ailments he turned to his old pupil, Dr. Edwin Smith, for help, which was most kindly given.

Sydney Jones, the eighth son of Mr. Robert Jones, of Walworth, was educated at Stanmore and King's College, from which places he matriculated at the London University. He was then apprenticed, in accordance with the custom of the day, to Mr. Bristowe, of Camberwell, father of Dr. John Syer Bristowe, the well-known physician to St. Thomas's Hospital, and author of the famous text-book. In due course he entered as a student at St. Thomas's Hospital, where he gained many of the prizes open to competition by the students. In the year 1853 he took the diploma of Member of the Royal College of Surgeons of England, and became a Licentiate of the Society of Apothecaries. In 1856 he became Bachelor of Medicine of the University of London and a Fellow of the Royal College of Surgeons. He spent some time in Paris studying surgery in the Hôtel Dieu and Lariboisière Hospitals, and became an assistant surgeon to St. Thomas's Hospital in 1860, with charge also of the ophthalmic department. He was also appointed lecturer on descriptive and surgical anatomy and ophthalmic surgery. In January, 1871, he was appointed full surgeon to the hospital, with charge of beds, and a joint lecturer on systematic surgery. By this time he had made a mark as an operating surgeon, and in 1883 he was chosen by the Fellows as a member of the Council of the Royal College of Surgeons and was also appointed an examiner in surgery to the Royal College of Physicians of London. At the close of 20 years' service as surgeon to St. Thomas's Hospital he retired with the rank of consulting surgeon. Having now more leisure he accepted the position of examiner to the University of Glasgow and held it for the usual term.

SYDNEY JONES, M.B. LOND., F.R.C.S ENG., CONSULTING SURGEON TO ST. THOMAS'S HOSPITAL. (*From a photograph by Ball, Wilton-road, S.W.*)

Sydney Jones was essentially a man of practice and not theory; he was not what is called "an original investigator," but readily adopted any method of wound treatment that appeared to possess advantage over previous procedures. In addition he accepted and practised any new manner of operative interference which offered a prospect of a better result, and we published many cases in our columns, chiefly in the Mirror of Hospital Practice, which showed that he was well in the forefront in all changes which were taking place in the general practice of surgery. He was operating largely at a time when rapidity was a necessity for success as a surgeon; and he was quick and brilliant as well as sound in such happy combination that many accounted him the best operator in London of his day. There were several operations which were considered in the "seventies" and "eighties" of the last century as the highest tests of an operator, and to see Sydney Jones perform a lateral lithotomy, remove a foot by Syme's method, or excise the upper jaw, surgeons would travel for long distances, and the auditorium of the operation theatre was sure to be crowded. His extensive knowledge of anatomy stood him in good stead through life, and when talking over the prospects of the success of a new operation or a supposed improvement in an old one his criticism was very sound. He did not contribute largely to the literature of the profession, preferring to write practical comments on cases, which were always very instructive, to placing ideas before his contemporaries which he thought might be of doubtful value. He made, however, several contributions to the annual volume of the reports of St. Thomas's Hospital; probably the papers which attracted most attention were those dealing with the treatment of diseased joints by excision. As curator of the museum of St. Thomas's Hospital he compiled a descriptive catalogue which was published in three volumes, the last being issued in 1859. At this time one other hospital only—namely, St. Bartholomew's—had published a catalogue of its museum pathological preparations, and it was owing to the undoubted value of Sydney Jones's work that the governors of St. Thomas's Hospital ordered the catalogue to be published. The task occupied three years, and in the preface to the catalogue it was stated that the entire collection required revision, that one-third of the specimens had to be described, and that many of the descriptions in the original manuscript required alteration or correction.

There could be little doubt of the excellent impression which his careful methods of investigation and thorough treatment of cases made upon the students under him in the wards, whilst his

impressive delivery and methodical arrangements of lectures, both systematic and clinical, rendered him popular in both school and hospital. In addition to the appointments at St. Thomas's Hospital Mr. Sydney Jones was consulting surgeon to the London Throat Hospital, the Surrey Dispensary, the Royal South London Dispensary, and to the Luton, Beckenham, and Hatfield Broad Oak cottage hospitals.

Mr. Sydney Jones married Miss Mary Morris, and had five children, of whom two sons, Dr. Sydney Harold Jones and Mr. Bevington Sydney Jones, both in the medical profession, and one daughter, Mrs. Pietersen, survive him. Many old St. Thomas's men will recall with gratitude the hospitable reception which was given them when visiting George-street, where most of Mr. Jones's professional life was passed.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. E. Schar, director of the Pharmaceutical Institute of the University of Strasburg.—Dr. G. J. Kleinschmidt, professor of anatomy in the Marquette University, Milwaukee.—Dr. W. Posthauer, formerly adjunct professor of physiology in the Milwaukee Medical College.—Dr. Manuel Brea, gynæcological physician to the Rivadavia Hospital, Buenos Aires, aged 34.—Baron de Bonet, rector of the University of Barcelona, who was eminent both as a clinical physician and an operating gynæcologist. He is stated to have been the first Spanish operator to perform ovariotomy.—Dr. J. de Boeck, professor of psychiatry and forensic medicine in the University of Brussels.—Dr. Alessandro Cugini, formerly professor of forensic medicine in the University of Parma.—Dr. Zambaco Pasha, of Constantinople, associate member of the Paris Academy of Medicine.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

The Medical Officer of Health for Montreal.

Dr. Louis Laberge, on account of weakened health subsequent to a carriage accident, has tendered his resignation of the position of medical officer of health for Montreal. Dr. Laberge first entered that city's employ in 1878 as vaccination officer, and became head of the medical department seven years later. He has held the latter position for 28 years. The name of Dr. J. E. Laberge, who has been connected with the health department for 20 years, is mentioned for the position.

Montreal Maternity Hospital.

For the hospital year ending Sept. 30th, 1913, the Montreal Maternity Hospital attended to 1243 patients. This is an increase of 250 patients over the previous year. The patients represent 25 nationalities, Canadians leading with 475. In the outdoor department 223 patients were treated. The staff of nurses numbers 21.

Infant Mortality in Montreal.

In a population of 568,000 in 1910 Montreal had 5534 deaths in infants, while Toronto for the same year in a population of 410,000 had 1420 infant deaths. In 1911 a like comparison existed, the figures being 5355 and 1442 respectively. In 1912 Montreal shows a reduction to 4835 and Toronto an increase to 1584. The rate per 1000 of population in Montreal is 9·2 and in Toronto 3·6. Up to August 15th of the present year 4172 infant deaths had occurred in Montreal. The infant mortality in Montreal is more than double that of any other American city. New York, with over 5,300,000 population, has an average of a little more than two infant deaths to every 1000 inhabitants, and Chicago, with its enormous slum areas, has practically the same rate as New York.

New Hospitals for Toronto.

By-laws will be submitted to the ratepayers of Toronto at the municipal elections on Jan. 1st, 1914, to authorise the city council to borrow $250,000 each for grants to two new hospitals to serve the east and west ends of the city. Toronto requires in hospital accommodation about 500 extra beds. The grants will be conditional upon each hospital promotion association first securing by private subscription $250,000 in cash; and the money will be paid by the city as fast as the additional $500,000 is collected, which will mean $1,000,000 for these two prospective institutions.

Cancer in Ontario.

Cancer claimed 176 more deaths in Ontario in 1912 than in 1911. The total deaths each year since 1903 in Ontario is as follows: 1156, 1253, 1224, 1411, 1329, 1348, 1597, 1602, 1778.

Tuberculosis in Ontario.

The decrease in the deaths from tuberculosis in Ontario in 1912 was 103, the total number of deaths from this cause in 1912 being 2250. Just 7 per cent. of the total number of deaths throughout the province was due to tuberculosis. By ages the heaviest death-rate occurs in the twenties. Over 28 per cent. of all deaths from tuberculosis occurred between 20–29 years. That the anti-tuberculosis campaign in Ontario is bearing good fruit is seen in the following figures: 1908, 2511; 1909, 2380; 1910, 2291; 1911, 2353; 1912, 2250. The disease in Ontario does not discriminate to any great extent between the sexes, in 1912 1168 sufferers being males and 1082 females. There is seen some slight difference in the abdominal form of the disease, for in the total for the five years 46·5 per cent. were males and 53·5 per cent. females.

Medical Inspection of Schools in British Columbia.

The second annual report on the medical inspection of public schools in British Columbia for the year ending June 30th has just been issued. British Columbia, according to the special committee on medical inspection of the Canadian Medical Association, is further advanced in this work than any other province in the Dominion of Canada. The work is done under the direction and supervision of the provincial board of health. The report shows that 20 per cent. of the school children of that province reveal some sign of tuberculosis. A report on 29,774 children shows that 16,774 are not vaccinated.

Dec. 3rd.

DONATIONS AND BEQUESTS.—Dr. John Moore Walker, of Edgbaston, formerly medical officer to the Cheltenham Provident Dispensary, has left the residue of his property, amounting to over £30,000, to St. Bartholomew's Hospital, London.—The Royal Victoria and West Hants Hospital will receive £1000 under the will of the late Mr. W. F. Goodliffe.—By the will of the late Miss Elizabeth Maria Hull, of Great Yarmouth, who left estate of the gross value of £37,021, of which £34,418 is net personalty, the testatrix bequeathed, after making several large bequests, the residue of her estate in equal shares to the Brompton Cancer Hospital, the Free Homes for the Dying, Clapham Common, the Royal Eye Hospital, Southwark, the Infirmary for Consumption and Diseases of the Chest and Throat, Margaret-street, Cavendish-square, W., the Hospital of St. Francis of Assisi, and the Poplar Hospital for Accidents.

Correspondence.

"Audi alteram partem."

THE GOVERNMENT OF THE ROYAL COLLEGE OF SURGEONS.

To the Editor of THE LANCET.

SIR,—The fact is unquestionable that "College politics" have for many years fallen to a very low ebb, despite the annual effervescence at the meeting of the Fellows and Members. Indeed, this term to many in the present day must be almost unknown. And yet 25 years and more ago the scenes which took place at the College, wholly arising from College politics, showed the intense seriousness of those who took part in them. The Fellows as well as the Members were then demanding concessions from the Council. To further the reforms promoted by the Fellows the "Association of Fellows" came into being; its heraldic device was based upon the aphorism "keep pegging away." The Association pegged away to some purpose, as some Fellows, still alive, among its active committee, can bear testimony, among whom may be mentioned Sir John Tweedy, Sir W. J. Collins, Mr. J. Vincent Bell (Rochester), Mr. W. Bruce Clarke, and Mr. A. W. Mayo Robson. We had an excellent president in the late Mr. George Pollock, an ardent hard-working vice-president in the late Mr. Timothy Holmes, and an able and strenuous fighter in the late Mr. Walter Rivington. My duties as honorary secretary merely consisted in summoning the meetings and recording the proceedings. A committee meeting was summoned on an average once a month, in addition an annual general meeting was held, and on occasions an annual dinner. After each meeting a full report of the proceedings was promptly dispatched to the medical journals. At special times a leading article, of course uninspired, would appear in our favour in the press, thus further showing our vitality and evincing our progress. The power and influence of these organising efforts were emphasised at the annual elections of members to the Council.

The Association always made a point of nominating a candidate or candidates out of their numbers. At first the success of these nominations was not conspicuous. Later, however, upon one occasion no fewer than four Fellows whom we supported, all pledged to carry the views of the Association into the Council, were elected. A flutter then took place among those who were opposed to us. We were becoming too strong; our strength was held to be detrimental to the interests of the College. But that was not the real reason for the compliment being paid us by our opponents of founding a rival agency, known as the "Society of Fellows." To pursue, however, the subsequent history of this reform movement is here unnecessary. The main purpose of these remarks is to suggest that if the Members unitedly desire to achieve the objects for which they are now aiming they must become efficiently organised, display an active and continuous vitality in their movement, seek to enlist the services of prominent Fellows willing to undertake their cause, cease the policy of perpetual recrimination against the Council, always so impolitic, and act constitutionally by employing all their efforts among the Fellows to secure the return of candidates pledged to support their views at the annual election to the Council. Even one Members' candidate upon the Council would be expected to have some leavening effect. Meanwhile there remains in front of the Members question an obstruction still as unnegotiable as when it first came into being—namely, the result of the trial, Steele *v.* Savory.—I am, Sir, yours faithfully,

London, W., Dec. 12th, 1913. PERCY DUNN.

THE MEDICO-PSYCHOLOGICAL CLINIC.

To the Editor of THE LANCET.

SIR,—Much publicity has been given to a meeting which was lately held in a hall lent by University College—and for which the College was therefore in no way responsible—to consider a proposal to found a medico-psychological clinic. But the press reports of this meeting have been almost monopolised by detailed accounts of the speech of its chairman, Lord Sandwich. His speech cannot be taken as expressing the views of those really responsible for the project. It consisted chiefly in the description of cures which he claimed to have effected himself by the exercise of some, apparently, occult power. Now the declared object of the clinic was to "bring about a practical alliance between general psychology and psychotherapy." The medical staff have already (in a letter to the two leading medical journals) dissociated themselves from this speech. Having been invited to represent the "general psychology" of the clinic, I should like unreservedly to join in this dissociation.

The notion of the clinic was started by some medical practitioners who, working with myself, realised the great change that is coming over psychology. Formerly it was little more than an occasional hobby of leisure hours. At the present moment there are thousands of enthusiastic workers all over the world giving their lives to psychology as a profession, accurately experimenting with the mind in the laboratories, minutely observing it in hospitals and asylums, making patient records in the nursery and the schoolroom, scouring the earth for its least civilised manifestations, and illuminating it by elaborate study of the conduct of lower animals and even of plants. Concomitantly, there has been evolved an elaborate technique of procedure and apparatus. The aim of all this is the gradual ascertainment of mental law, and the corresponding control of mental event. Just as physical science has taught us to build, to mine, to telegraph, and to fly, so too psychic science is beginning to show us how to train up the growing intellect, emotions, and will, how to diagnose their condition, to maintain them in health, and to heal them when sick. Occultism is not only alien to the spirit of the proposed clinic; it is in direct contradiction of it.—I am, Sir, yours faithfully,

C. SPEARMAN,
Grote Professor of Mind and Logic, University of London, University College.

Dec. 10th, 1913.

RANGE OF FLIGHT OF MUSCA DOMESTICA.

To the Editor of THE LANCET.

SIR,—Mr. Paul B. Roth in THE LANCET of Dec. 6th hopes I may be able to afford some evidence as to the range of flight of Stomoxys calcitrans. I regret I am unable to do so. Stomoxys is only rarely found indoors; it is essentially an outdoor fly. I have twice been stung by this fly out of doors. Occasionally a specimen may be found indoors, but generally at the window trying to get out. I once

observed a considerable number sunning themselves on seats and on a table out of doors at a country inn. As regards poliomyelitis, the majority of sufferers are of tender age. Such cases as have come under my observation have generally had a history of direct or indirect infection through a probable "carrier" coming from an infected area (see annotation in THE LANCET of Dec. 23rd, 1911).

It is clearly quite possible that Rosenau's suggestion of infection conveyed by stomoxys, which has been supported by Mr. Roth and others, may account for some cases, but we should be able to obtain a history of fly-bite in at least some of these cases—for the awl-like proboscis of stomoxys inflicts a sharper sting than that of the mosquito, as I can testify from personal experience of both. It may possibly be considered as evidence in favour of this theory that the majority of cases of epidemic poliomyelitis, which have come under my observation, occurred in a district not many miles from a place where I was stung by a stomoxys some five or six years ago. Generally, flies were numerous at the time of the epidemic in 1911, but there are no records as to whether stomoxys was noted among them, nor was there any history of bites volunteered in any of the cases.

I am, Sir, yours faithfully,

The Shirehouse, Norwich, Dec. 15th, 1913. J. T. C. NASH.

DATES IN PHYSIOLOGY.

To the Editor of THE LANCET.

SIR,—I have to thank your reviewer for the kindly notice of the new edition of my "Handbook of Physiology" which appeared in THE LANCET of Dec. 13th. I am always grateful for suggestions for improvement, and some of those made by your reviewer I hope to avail myself of in future editions. The sentence regarding the importance of inserting a few dates of epoch-marking discoveries in physiology I fully agree with. But your reviewer seems to imply that all such dates are omitted in my last edition, except the comparatively unimportant one of the period of Erasistratus. A more careful perusal of the book will show your reviewer that this is not the case. Dates are given in reference to the work of Harvey, Haller, Wharton Jones, Stephen Hales, Henle, Claude Bernard, and many others of the past. Carl Ludwig and Marey, it is true, are undated, but this applies also to the majority of living physiologists or to those who have also recently died, and there are many reasons for such omissions. The very omission tacitly implies that their work has been carried out during comparatively recent times.

I am, Sir, yours faithfully,

W. D. HALLIBURTON.

King's College, London, Dec. 13th, 1913.

CANCER AND SECONDARY RAYS FROM CALCIUM PHOSPHATE.

To the Editor of THE LANCET.

SIR,—I have accumulated a considerable amount of evidence to the effect that, where cancer has been cured by radium, the effect has been due to secondary radiation from one of the constituents of bone material. The indications are that the constituent is either calcium or phosphorus. Of course, the proper way to attack the problem would be to determine what wave length of X rays is emitted from bone material when exposed to gamma rays from radium, and then to determine what kind of anti-cathode and what hardness of X ray will produce the same secondary radiation. At present I fear that this cannot be done, but by embedding a piece of bone material or calcium phosphate in a cancer and exposing it to a pencil of X rays from a tube with uranium anti-cathode and of the proper degree of hardness I would anticipate much more favourable and consistent results than those obtained from radium.

I am, Sir, yours faithfully,

REGINALD A. FESSENDEN.

Brookline, Mass., Dec. 1st, 1913.

MEDICAL INSPECTION OF PARSI SCHOOL CHILDREN OF THE BOMBAY PRESIDENCY.

To the Editor of THE LANCET.

SIR,—In an annotation of August 16th last on the subject of School Medical Inspection in India THE LANCET was good enough to make a reference to my paper on Parsi Education and Parsi Health, read before the third Zoroastrian Conference. It will therefore be opportune to describe here what followed. The Zoroastrian Conference, which is the leading association looking after the welfare of the Parsi community, passed a resolution at the same sessions during which the paper was read, requesting its standing committee to formulate and enforce a practical scheme of medical inspection, supervision, and treatment of all Parsi school children of the Bombay Presidency. Accordingly, the standing committee appointed a joint committee of leading Parsi educationists, head-masters of schools, and qualified medical men to do what was needful. To this committee I submitted a complete scheme of medical inspection, supervision, and treatment. The scheme was approved and adopted by the joint committee, and I was selected as its medical secretary to put it into working order. Subsequently, at the invitation of the committee more than 30 Parsi doctors, among whom were consultants, specialists, and general practitioners, volunteered their free services at great personal sacrifice for the purposes of medical inspection. So that we have by this time been enabled to complete the medical examination of Parsi pupils of more than half a dozen schools. Our plan is as follows. A week before the inspection our office informs the head-masters of the date on which the pupils are to be examined, and requests them to prepare lists of all Parsi children attending their schools and to forward to the parents of the children a notice explaining the practice and purpose of medical inspection, and a circular for describing the family and the previous history of the children to be filled in by either the parents themselves or their family physicians. The circulars are returnable to this office within four days. Two days previously to the actual inspection a card is sent to the parents inviting them to be present at the time of inspection noted on the card.

The inspection is held on the school premises, during school hours, in the presence of one or more class teachers, as well as of the parents of children who may have attended for the occasion. Each child is then successively examined by an eye, ear, throat, and nose specialist, a dentist, and a general examiner, to whose lot falls the examination of all the systems left over by the specialists. The results of these separate examinations are inserted on four different sets of forms issued by this office. If there are any cases requiring further

investigation they are referred to the consultants, and any special cases of urinary or skin diseases are referred to the urologist and the dermatologist. Each child is thus thoroughly examined by four or more fully qualified doctors. In every primary, middle, and secondary school, male and female, all Parsi pupils from the infant to the highest classes have thus the benefit of thorough medical inspection.

As to the treatment of those found suffering from any defect or disease, our office sends advice cards to parents informing them of the results of the examination and advising them to put their children under the treatment of their family physicians. If parents are too poor to afford private medical treatment they are recommended to apply for treatment at one of the Parsi charitable institutions for relief of the indigent and sick poor. We hope in the near future to establish a Parsi school clinic, which would facilitate the following-up and treatment of the suffering children.

As to the feeding of the necessitous children, arrangements have already been made by the authorities of some of our Parsi schools to provide good meals during the day and thus enable the children to profit fully by the education given in their schools. It is expected that other schools will copy their excellent example and look after the starving children. When the Parsi school clinic is established we hope to coördinate the work of medical inspection, following-up, and treatment of the suffering children, as well as the feeding of the necessitous.

This is only the first step in our complete scheme of communal welfare of our school children, and we hope in the near future to complete the scheme by taking the necessary successive steps as circumstances permit. In this task we have the full sympathy and support of our enlightened community, and particularly of the parents of the school children as well as of the teachers, to whose willing help we are much indebted for the serviceable working of our scheme.

I am, Sir, yours faithfully,

K. K. DADACHANJI,
Medical Secretary, the Z. C. Medical Inspection of Parsi School Children of the Bombay Presidency.

Bombay, Nov. 27th, 1913.

THE EBBW VALE WORKMEN'S MEDICAL SOCIETY.

To the Editor of THE LANCET.

SIR,—Some three or four weeks ago the *British Medical Journal* published a statement to the effect that the Ebbw Vale Workmen's Medical Society—in common with those of Tredegar, Rhymney, and Aberdare—retained the old salaried system and gave no free choice of doctor. What obtains in these places I am not prepared to state, but I note that in your issue of last week you have apparently fallen into the same error as regards Ebbw Vale. Your contemporary has twice been given the opportunity of correcting its statement, which is opposed to the true facts of the case, but has failed to do so. I therefore ask you in fair play to remove the false impression created by your leading article.

The Ebbw Vale Medical Society has recognised to the fullest extent the principle of "free choice of doctor"; it pays no salaries—the remuneration of the medical man depends entirely on the number of capitation fees from the number of payees "signing on" for him; there are no districts; the doctors are in no sense "whole-time" men—they are allowed private practice, to have patients on the "public panel," and to hold any other posts they may be able to obtain. The society maintains a 22 bed hospital with a modern equipment for its payees and their dependents, and there is no "touting" in the district, as there is nothing to be gained by such a proceeding, as with one or two exceptions all the medical men in general practice—members of the British Medical Association and others—are on the panel of the society.

I am not on the panel myself and therefore do not feel at liberty to disclose the actual financial terms existing between the medical men and the society, but I believe that, if not the best in the United Kingdom, they are second to none in liberality.

I am, Sir, yours faithfully,

HUGH NEVILLE TAYLOR, M.A. Cantab., M.A., M.D. Dub., F.R.C.S.E. Edin.,
Surgeon, Ebbw Vale Hospital.

Ebbw Vale, Dec. 15th, 1913.

*** Our correspondent must be referring to a sentence in one of the articles by our Special Commissioner, and not to any leading article. We wish that Dr. Taylor had felt able to publish the exact conditions of service at Ebbw Vale.—ED. L.

INTESTINAL "KINKS."

To the Editor of THE LANCET.

SIR,—Assuming a kink of the intestine to be an acute bend or angulation caused by adhesions or bands, I ask leave to submit the following questions to my colleagues: 1. Does a kink produce symptoms by causing obstruction to the passage of the bowel contents? 2. If a kink does not cause symptoms of obstruction, what symptoms may it produce? 3. If a portion of bowel is chronically obstructed, does the bowel above the obstruction become either hypertrophied or dilated, or both? 4. In the absence of both hypertrophy and dilatation of the bowel proximal to the kink, what signs would indicate that the kink is causing obstructive or other symptoms? 5. Is the presence of a kink in a portion of intestine drawn up to or beyond an incision in the abdominal wall proof that a kink exists when the bowel lies within the abdomen?

I am, Sir, yours faithfully,

Plymouth, Dec. 9th, 1913. C. HAMILTON WHITEFORD.

FOREIGN UNIVERSITY INTELLIGENCE.—*Angiers:* Dr. Thibault, professor of internal pathology, has been appointed Professor of Clinical Medicine, in succession to the late Dr. Jagot. Dr. Denechau has been appointed to the chair of Internal Pathology. Dr. Vinsonneau has been appointed to the chair of Clinical Ophthamology, in succession to the late Dr. Motais.—*Berlin:* Dr. Max Stickel has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Brunswick:* Dr. Walter H. Schultze, prosector to the Grand Ducal Hospital and *dozent* of hygiene and bacteriology in the Technical School, has been granted the title of Professor.—*Budapest:* Dr. A. von Lichtenberg, of Strasburg, has been offered the post of Chief Medical Officer of the General Policlinic.—*Buenos Aires:* A new hospital has just been opened by the Spanish Benevolent Society for both poor and well-to-do Spaniards, the Hospital y Asilo de Temperley; it is splendidly fitted up with baths and all modern improvements. Dr. Alvaro Newton has been appointed by the municipal authority Director of the Hospital Durand.—*Freiburg:* Dr. Curt Ziegler, *privat-docent* of medicine, has been offered an Extraordinary Professorship of Medicine with the post of Director of the University Medical Clinic.—*Giessen:* Dr. A. Brüggemann has been recognised as *privat-docent* of Otology and Laryngology.—*Greifswald:* Dr. P. Morawitz, extraordinary professor in Freiburg, has been appointed to the chair of Clinical Medicine, in succession to Dr. Steyrer, who is going to Innsbruck.

THE NATIONAL INSURANCE ACT.

CLAUSE 2 (ii.).

AT a recent meeting of the Cardiff Insurance Committee the Local Medical Committee submitted an amendment to the clause in the new model agreement which seeks to prohibit the practitioner from accepting any fee or other remuneration in respect of treatment which he is required to give to an insured person under the agreement. The amendment, which would have prohibited the demand, but not the acceptance, of an extra fee, was lost after a discussion in which reference was made by a speaker to the question as one of "tipping the doctor." The offensiveness of this phrase was pointed out by the Lord Mayor, and the reasonableness of the amendment, from the point of view of more well-to-do patients, as well as of their medical attendants, was dwelt upon by more than one speaker. In Middlesex amendment of the clause has been sanctioned by the Insurance Commissioners, so that there is added to it (the word "accept" being retained)—

But nothing in this agreement shall be construed as prohibiting the acceptance by the practitioner from an insured person of such fees as may have been agreed between them in writing as a condition of the acceptance by the practitioner of the insured person where the places of residence of the insured person and the practitioner are so situated that access between them is by reason of distance or otherwise difficult or inconvenient, and where there is another practitioner upon the panel by whom the insured person might have been accepted, or to whom he might have been assigned, and whose residence is nearer to that of the insured person or is less inconvenient of access.

The intention of this would appear to be to prevent the medical practitioner where he is free from competition from taking advantage of his position, while according a limited freedom of choice in the matter to the patient. The Middlesex Insurance Committee has also agreed to make a minute that "the phrase 'accept any fee or other remuneration' does not include a present or a gift made by an insured person to a doctor. Cheshire resolutions of the Medical Ben " In committee adopted by the Insurance Committee include one:—

That the subcommittee consider it undesirable that any alteration should be made in the wording of Clause 2 (ii.).

At Birmingham a subcommittee of the statutory Medical Committee has recommended that after the word "remuneration" should be inserted the words "from the patient." At Ipswich a discussion took place at a meeting of the Insurance Committee, but a proposed amendment of the clause having for its object the substitution of "demand" for "accept" was lost by a considerable majority. The attitude of the Commissioners on the subject in opposition to any alteration was referred to by a speaker as "adamantine."

THE NATIONAL INSURANCE PRACTITIONERS' ASSOCIATION.

At a general meeting of members of the National Insurance Practitioners' Association, held in the Caxton Hall on Dec. 12th, a report was presented of a year's hard work. Having been formed for the specific purpose of inducing men to accept service under the National Insurance Act and to look after the interests of those accepting such service, the association, by means of a very energetic campaign, was able to complete the first part of its programme in a little over a month from its formation, for by that time panels were complete in most areas. The association strove energetically for the simplification of the records, and its influence contributed largely to the Amending Act of 1913. Under this Act panel committees are appointed and recognised by statute, and provision is made for financing them. From the fact that strong panel associations are already in existence or are being formed in London and throughout the country, and that steps are being taken to link these up in one central body, it was considered advisable that the National Insurance Practitioners' Association, having completed the work for which it was called into being, should no longer exist as a separate organisation, but that its members should join their various panel associations and support the central body.

NATIONAL MEDICAL GUILD.

The National Medical Guild is holding a meeting of medical practitioners to-day (Friday, Dec. 19th), at 4 P.M., at the Hammersmith Town-hall, to discuss the value of trade unionism for the medical profession. The chair will be taken by Dr. Charles Buttar, president of the Guild. Mr. E. B. Turner will open the discussion in favour of a trade union. Speeches and questions from the audience will be invited, and a resolution will be put to the meeting at 6 o'clock.

THE TEMPTATION TO MALINGER.

A man was fined 40s., with the alternative of 14 days' imprisonment, recently for making a false representation for the purpose of obtaining benefit under Part II. of the National Insurance Act, 1911, the representation being in effect a denial that he was receiving sickness benefit when in fact he was drawing it. As the magistrate observed, it might pay the defendant better to be sick than to be unemployed, but it paid him best to be both, so he drew 10s. from his society, 7s. from the Labour Exchange, and half wages under the Workmen's Compensation Act. It need hardly be pointed out that when the legislature renders idleness so remunerative the task of the medical man, upon whom is cast the duty of distinguishing feigned from real illness, is not likely to be an easy one.

IPSWICH INSURANCE COMMITTEE.

In addition to the question of Clause 2 (ii.) mentioned above, the Ipswich Insurance Committee discussed at a recent meeting, and agreed to, a new tariff for drugs, excluding a proprietary article of which the contents were not publicly disclosed. The committee also considered the conditions subject to which insured persons should make their own arrangements with medical practitioners when permitted to do so. A new scale had been proposed for this to replace an arrangement by which practitioners not on the panel had agreed to treat patients on the same terms as those on the panel. Questions were settled as to the date of commencement and financial details under the new arrangement by which, it was mentioned, non-panel practitioners would charge 3s. 6d. for special visits instead of 2s. 6d., and 5s. instead of 3s. 6d. for night visits.

ABERDEEN INSURANCE COMMITTEE: ALLOCATIONS TO PANEL PRACTITIONERS.

At a meeting of the Medical Benefit Subcommittee of the Aberdeen Burgh Health Insurance Committee held on Dec. 8th a letter was read from the Scottish Insurance Commissioners approving of the following recommendations by the subcommittee:—

1. That no doctor with more than 1000 insured persons on his list as on Dec. 1st, 1913, should participate in the allocation.

2. That no doctor with fewer than 10 patients on his list as on Dec. 1st, 1913, should participate in the allocation.

3. That no insured persons should be placed upon a doctor's list whose surgery or residence was over two miles from the patient's home.

4. That insured persons should be allocated as equally as possible amongst the doctors entitled to share in the allocation.

5. That the doctors with the above qualifications, who came on to the panel after Jan. 12th, 1913, should share equally in the allocation, but that the payments should be made only as from the date upon which they joined the panel.

An amendment was moved that the inverse ratio should be adopted instead of the equal division, but ultimately the recommendations above detailed were adopted, and should the City Health Insurance Committee approve, 35 practitioners will receive about 100 additional patients each.

A PROPOSAL AT MANCHESTER.

Mr. E. Lloyd Jones, chairman of the Manchester Insurance Finance Subcommittee, recently addressed a long letter to the *Manchester Guardian* in support of a proposal made by him to administer benefits under the Insurance Acts by engaging medical practitioners as full-time paid servants of the Insurance Committee, to treat 1500 patients each in return for salaries of £400 a year. This, it will be seen, would mean sweating any members of the medical profession willing to be engaged at about 50 per cent. less than would be their due under the capitation system for the same number of patients. The amount saved Mr. Lloyd Jones would devote to employing specialists and nurses. He writes, "I am not concerned so much about what Mr. Lloyd George promised. What I am concerned about is that the insured persons shall get their rights." Certainly what Mr. Lloyd George promised to insured persons (which they presumably regard as their rights) would not be obtained for them by reverting to the kind of terms associated with the evils of club practice. Medical men also will no doubt consider that they, at any rate, are concerned with their own rights under the Insurance Acts, and with the fulfilment of promises made to them by the Chancellor of the Exchequer.

THE Royal Dental Hospital, Leicester-square, has received £5 as a Christmas donation from H.M. the Queen.

THE Metropolitan Asylums Board has appointed Dr. E. B. Sherlock, who has been in the service of the Board for several years, to be medical superintendent of Darenth Industrial Colony, in place of Dr. Arthur Rotherham, who has been appointed a Commissioner under the Mental Deficiency Act, 1913. Dr. J. L. Gordon, assistant medical officer at Caterham Asylum, has been promoted to fill the resulting vacancy of acting medical superintendent at the Fountain Temporary Asylum.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a meeting of Council on Dec. 11th, 1913, diplomas of Fellow were conferred upon 28 candidates who successfully passed the final examination which was held on Nov. 20th, 25th, 26th, 27th, 28th, and 29th last, for which 68 candidates presented themselves. The following are the names and schools of the successful candidates:—

Robert Morison Rowe, M.A., B.Ch., M.D. Edin., M.R.C.S., L.R.C.P., Edinburgh University and St. Bartholomew's Hospital; Philip Julius Franklin, M.R.C.S., L.R.C.P., Middlesex and London Hospitals; Thomas Herbert Cecil Benians, M.R.C.S., L.R.C.P., and George Henry Chisnall, M.B., B.S. Lond., M.R.C.S., L.R.C.P., London Hospital; Trevor Berwyn Davies, M.D., B.S. Lond., M.R.C.P., University College Hospital; Mark Bates, B.M., B.Ch. Oxon., M.R.C.S., L.R.C.P., Oxford University and St. Bartholomew's Hospital; Charles William Archer, M.A., B.C. Cantab., M.R.C.S., L.R.C.P., Cambridge University and St. Bartholomew's Hospital; Edward Holmes Rainey, M.R.C.S., L.R.C.P., London Hospital; John Lichtenstein Ritchie, M.B., Ch.B. Birm., M.R.C.S., L.R.C.P., Birmingham University; Frank Holt Diggle, M.B., Ch.B. Manch., F.R.C.S. Edin., M.R.C.S., L.R.C.P., Manchester University and St. Bartholomew's Hospital; James Stanley Jobson, B.A., M.B., B.C. Cantab., M.R.C.S., L.R.C.P., Cambridge University and London Hospital; Stanley Eric Vincent Brown, M.B., Ch.B. New Zealand, M.R.C.S., L.R.C.P., Otago University and London Hospital; Adrian Leonard Moreton, M.B., B.S. Lond., M.R.C.S., L.R.C.P., and Clement Treves Neve, M.B., B.S. Lond., M.R.C.S., L.R.C.P., St. Bartholomew's Hospital; Robert Antruther Ramsay, B.C. Cantab., M.R.C.S., L.R.C.P. Cambridge University and St. Bartholomew's Hospital; Edward Gustave Schlesinger, M.B., B.S., B.Sc. Lond., M.R.C.S., L.R.C.P., Guy's Hospital; Norman Duggan, M.B., Ch.B. Vict., M.R.C.S., L.R.C.P., Manchester University and University College Hospital; Wilfrid Archer Sneath, M.B., Ch.B. Manch., M.R.C.S., L.R.C.P., Manchester University and London Hospital; Sidney Bertram Radley, M.B., B.S. Lond., M.B., Ch.B. Manch., M.R.C.S., L.R.C.P., Manchester University and St. Bartholomew's Hospital; Francis Gordon Bell, M.B., Ch.B., M.D Edin., M.R.C.S., L.R.C.P., Edinburgh University; Norman Claudius Lake, M.D., B.S., B.Sc. Lond., M.R.C.S., L.R.C.P., Charing Cross Hospital; John Tertius Morrison, M.B., Ch.B. Edin., M.R.C.S., L.R.C.P., Edinburgh University and Guy's Hospital; Edward Rayner, B.A., M.B., B.C. Cantab., M.R.C.S., L.R.C.P., Cambridge University and St. Thomas's Hospital; John Smeed Bookless, M.B., B.S. Lond., Guy's Hospital; Alexander Gibson, M.A., M.B., Ch.B. Edin., Edinburgh University; John Gow, M.B., Ch.B. Manch., Manchester University; Ronald Chesney MacQueen, M.B., Ch.B. Edin., Edinburgh University and London Hospital; and Joseph Collingwood Stewart, M.B., M.S. Durh., Durham University.

Licences to practise Dentistry were conferred upon 54 candidates who have passed the requisite examinations and complied with the by-laws:—

Leslie Alabone, Guy's Hospital; Henry John Farrow Alexander, Middlesex and Royal Dental Hospitals; Reginald Hugh Basker, Bristol University; Fritz Ernest Bendix, Middlesex and Royal Dental Hospitals; Caswell Glynne Bowen, Charing Cross and Royal Dental Hospitals; Reginald Gordon Bradley, Allwright Alfred Brown, William Allen Bulleid, and Alfred Fisher Camp, Guy's Hospital; James Percy Cocker, Leeds University; Louis Charles Cohen and Richard Groves Cowell, Guy's Hospital; Frederick Andrew Crane, Middlesex and Royal Dental Hospitals; Walter Alexander Craine, Liverpool University; Edmund Dinsmore, Charing Cross and Royal Dental Hospitals; Cyril Henry Edwards, Guy's Hospital; Percy William Flook, Bristol University; William Trevor Flooks and William Kelsey Fry, M.R.C.S., L.R.C.P., Guy's Hospital; Vivian Arthur Frederick Greenish, Middlesex and Royal Dental Hospitals; Frank Cecil Harrison, Sheffield University and Royal Dental Hospital; Carl Joseph Oldham Jensen, Charing Cross and Royal Dental Hospitals; Edward Eastaugh Johnson, Guy's Hospital; William Sanders Johnstone, Charing Cross and Royal Dental Hospitals; Norman Harold Kettlewell, Middlesex and Royal Dental Hospitals; Sidney McCallin, D.D.S., Chicago and Middlesex Hospital; Percy Scott McFarlane, Guy's Hospital; Wilfred Richard Matthews, Middlesex and Royal Dental Hospitals; Lancelot Turtle Montgomery, Guy's Hospital; Norman Mulliner, Liverpool University; Cyril Henry Oliver and John Stanley Palmer, Guy's Hospital; Haydn Peters, Middlesex and Royal Dental Hospitals; Kingsley Chisman Pitman, Guy's Hospital; Francis Rupert Rice, Middlesex and Royal Dental Hospitals; Reginald Harry Rix, Guy's Hospital; George Herbert Heywood Russell, M.B. Manch., Manchester University; George Vincent Saunders, Guy's Hospital; Sydney Frank Simpson, King's College and Royal Dental Hospitals; Herbert Leslie Smith and Robert Cyril Wilmer Staley, Guy's Hospital; Thomas William Stark, B.A. Lond., Middlesex and Royal Dental Hospitals; Stanley Stevens, Guy's Hospital; Eric Wesley Thomas, Bristol University; Harold Treleaven, Charing Cross and Royal Dental Hospitals; Arthur Bayford Guy Underwood, M.B., B.S. Lond., M.R.C.S., L.R.C.P., University College and Guy's Hospitals; Reginald McKenzie Veale and Geoffrey Heegaard Warner, Guy's Hospital; Geoffrey Legh Wilkinson and Malcolm Lloyd Williams, Birmingham University; Harold Vincent Wolfenden and Herman Wolff, Middlesex and Royal Dental Hospitals; Paul Bernard Wood, M.A., LL.B. Cantab., Charing Cross and Royal Dental Hospitals; and Leslie Douglas Wright, M.R.C.S., L.R.C.P., Guy's Hospital.

The diploma of M.R.C.S. was also conferred upon Aaron Simeon Cohen, Cardiff and Westminster Hospitals, and Tribhovandas Oghaddas Shah, I.M.S. Bombay, Bombay University and London Hospital.

ROYAL SANITARY INSTITUTE.—Colonel Guy Carleton Jones, M.D., Director-General, Medical Service of the Militia of Canada, and Dr. William Robertson, medical officer of health, Leith, have been elected Fellows of the institute; and Dr. W. W. Aylen, Dominion Quarantine Officer, Montreal; Dr. Louis Laberge, medical officer of health, Montreal; Major N. J. C. Rutherford, R.A.M.C.; and Mr. H. G. Waters, medical officer of health, Jamalpur, have been elected members.

Mr. G. L. Eastes ask us to state for the convenience of our readers that the laboratories at 38, New Cavendish-street, London, W., will be closed on Thursday, Friday, and Saturday, of next week, except for the examination of diphtheria swabbings and other very urgent specimens.

ROYAL MEDICAL BENEVOLENT FUND.—At the November meeting of the committee 32 cases were considered and grants amounting to £332 made to 29 of the applicants. Appended is an abstract of the cases relieved:—

Daughter, aged 39, of late M.D. Edin. Has maintained herself as mother's help, &c., but has been strongly advised to take up maternity nursing and requires assistance with the expenses of her training. Voted £10.—Widow, aged 43, of L.R.C.P., L.R.C.S. Edin. Lost her husband a few months ago after an illness lasting several months, and is left quite unprovided for. Five children, three dependent and the two elder only earning a few shillings a week. Voted £10.—Widow, aged 46, of M.R.C.S. Endeavours to support herself by letting lodgings, but cannot quite meet her expenses until her children are self-supporting. Relieved four times, £47. Voted £12.—Daughter, aged 36, of late M.R.C.S. Has a post at a small weekly wage at a jeweller's shop, but thinks that if she can learn typewriting she will be able to improve her position.—Relieved once, £5. Voted £10.—Daughter, aged 54, of late M.D. Glasg. Supported herself for several years by letting lodgings, but is in difficulties owing to the long illness of a sister who recently died. Only income an Old Age Pension. Voted £18.—Daughter, aged 47, of L.R.C.P., L.R.C.S. Glasg. Has an income of £22 a year, and hopes to supplement it by teaching, but requires a rest after nursing her mother (recently deceased) for several months. Voted £5.—Daughter, aged 46, of L.R.C.P., L.R.C.S. Edin. Has been a nurse in an isolation hospital for 12 years, but has broken down in health and is ordered a complete rest. Voted £5.—Widow, aged 47, of L.R.C.P., L.R.C.S. Irel. Is endeavouring to establish a small boarding-house at a seaside town, but has had a bad season and heavy expenses owing to the serious illness of one of her boys who is a foundationer at Epsom College. Voted £12 in 12 instalments.—Daughter, aged 39, of late M.R.C.S. Is well educated and intelligent, but suffers from chronic retinitis which compels her to depend upon her mother whose income is less than £40 a year. Relieved once, £5. Voted £10.—Daughter, aged 54, of late M.R.C.S. No income, and unable to support herself owing to permanent bad health; slight help from a relation. Relieved 4 times, £44. Voted £12.—Widow, aged 53, of L.S.A. Almost blind and deaf, and dependent on a son who only earns 25s. a week. Relieved seven times, £104. Voted £18.—Daughters, aged 62 and 54, of late M.R.C.S. No income; endeavour to support themselves by receiving boarders, but find difficulty in obtaining them, and are both in feeble health. Relieved four times, £84. Voted £18.—Widow, aged 76, of M.D. Income less than £1 a week, and asks for a little help towards expenses which are unavoidable on account of ill-health and old age. Relieved eight times, £46. Voted £5.—Daughter, aged 63, of late M.R.C.S. Supplements a small pension from a charitable society by taking boarders, but finds great difficulty in making both ends meet. Relieved twice, £20. Voted £10.—Daughter, aged 68, of late M.R.C.S. Has maintained herself since father's death several years ago by receiving boarders, but now only has one and is constantly in difficulties. Relieved once, £12. Voted £12.—Widow, aged 82, of M.R.C.S. Has a small annuity, but asks for assistance towards unavoidable expenses incurred through an accident. Relieved four times, £35. Voted £5.—Widow, aged 66, of L.R.C.P. Edin. Has a small pension from a City Company, but finds it insufficient for bare necessities, and is in bad health and crippled by rheumatism. Relieved seven times, £48. Voted £12.—Widow, aged 72, of L.R.C.P. Edin. Only income an old age pension; sight failing and health indifferent. Relieved six times, £72. Voted £12.—Widow, aged 68, of M.R.C.S. Supported herself for several years after her husband's death, but was obliged to give up her last post owing to ill-health. Has an annuity of £10 and is allowed the same amount by a friend. Relieved five times, £54. Voted £9.—L.R.C.P., L.R.C.S. Edin. Has been incapacitated for some years by spastic paraplegia, and is dependent on a sister who can ill afford to help. Relieved nine times, £108. Voted £12.—Daughters, aged 61 and 56, of late M.R.C.S. No income; slight help from friends and small earnings by needlework. Relieved nine times, £134. Voted £20.—Widow, aged 76, of L.R.C.P. Edin. Supplements an income of a few shillings a week by taking lodgers. Children unable to help; health failing. Relieved three times, £36. Voted £12.—Daughter, aged 66, of late M.R.C.S. Income £22 a year. Is obliged to ask for assistance owing to increasing infirmities and indifferent health. Relieved five times, £60. Voted £12.—Daughter, aged 59, of late L.S.A. No income, but is at present receiving a few shillings a week from a relation; has always been in bad health. Relieved 14 times, £137. Voted £15.—Daughter, aged 58, of late M.R.C.S. Has a pension of £22 a year, and receives occasional slight assistance from friends; is a permanent invalid and at present unable to leave her room. Relieved seven times, £71. Voted £12.—Widow, aged 55, of L.F.P.S. Glasg. No income, and endeavours to maintain herself by taking boarders. Relieved three times, £30. Voted £10.—Daughter, aged 60, of late M.R.C.S. Has maintained herself for some years, but is now in difficulties which it is hoped will prove temporary. Relieved once, £10. Voted £10.—Daughter, aged 61, of late L.R.C.P. Edin. Is unable to support herself owing to permanent deafness, and is consequently dependent on a sister who is a mental nurse. Relieved eight times, £92. Voted £12.—L.R.C.P., aged 78. Acts as ship's surgeon when able to obtain a post as such, but is at present unemployed. Relieved twice, £24. Voted £12.

Contributions may be sent to the honorary treasurer, Dr. Samuel West, 11, Chandos-street, Cavendish-square, London, W.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, J. B. ET FILS, Paris.

Nouveau Traité de Chirurgie, Clinique et Opératoire. Publié en Fascicules sous la Direction de A. Le Dentu et Pierre Delbet. XXIII. Maladies de la Mamelle. Par Amédée Baumgartner, Chirurgien des Hôpitaux de Paris. Price, paper, Fr.6; boards, Fr.7.50.

BAILLIÈRE, TINDALL, AND COX, London

Radium, its Physics and Therapeutics. By Dawson Turner, B.A., M.D., F.R.C.P. Edin., M.R.C.P. Lond., F.R.S. Edin. Second edition, revised and enlarged. Price 5s. net.

BELL, G., AND SONS, LIMITED, London.

Cancer, its Cause and Treatment without Operation. By Robert Bell, M.D., F.R.F.P.S., &c. Second edition, revised. Price 5s. net.

LIVINGSTONE, E. AND S., 15, 16, 17, Teviot-place, Edinburgh.

Catechism Series. Bacteriology. Second edition, revised and enlarged. Parts I. and II. Price of each part, 1s. net.
Catechism Series. Medicine: Part I. Second edition, revised and enlarged. Price 1s. net.

LONGMANS, GREEN, AND CO., London, New York, Calcutta, and Bombay.

Alimentary Toxæmia, its Sources, Consequences, and Treatment. A Discussion opened by W. Hale White, M.D., F. W. Andrewes, M.D., Vaughan Harley, M.D., Robert Saundby, M.D., W. Arbuthnot Lane, M.S., and J. F. Colyer, M.R.C.S., L.D.S. (From the Proceedings of the Royal Society of Medicine, 1913, Vol. VI.) Price 4s. 6d. net.

MACMILLAN AND CO., LIMITED, London.

Text-book of Paleontology. Edited by Charles R. Eastman, A.M., Ph.D., Professor of Paleontology in the University of Pittsburgh and Curator at the Carnegie Museum, Pittsburgh. Adapted from the German of Karl A. von Zittel, late Professor of Geology and Paleontology in the University of Munich. Second edition, revised and enlarged by the Editor in collaboration. Vol. I. Price 25s. net.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BLACK, HAROLD, M.B., D.P.H. Belf., has been appointed Radiographer to the Queen's Hospital, Birmingham.

GORDON, J. L., M.D., Ch.B. Aberd., has been appointed Acting Medical Superintendent at the Fountain Temporary Asylum.

PRATT, J. J., Colonel I.M.S., has been appointed Surgeon to the Seamen's Hospital.

ROTHERHAM, ARTHUR, M.B., B.C. Cantab., has been appointed a Commissioner under the Mental Deficiency Act, 1913.

SHERLOCK, R. B., M.D., B.Sc. Lond., D.P.H., has been appointed Medical Superintendent of Darenth Industrial Colony.

SYME, W. S., M.D. Edin., F.R.S.E., has been appointed Extra-Academical Lecturer on Diseases of the Nose and Throat in the University of Glasgow.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ALNWICK INFIRMARY.—House Surgeon, unmarried. Salary £140 per annum, with board and apartments.

ARGYLE AND BUTE ASYLUM, Lochgilphead.—Assistant Medical Officer, unmarried. Salary £200 per annum, with apartments, board, and laundry.

BATH, ROYAL MINERAL WATER HOSPITAL.—Resident Medical Officer. Salary £120 per annum, with lodging, board, and washing.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—House Surgeon for six months. Salary at rate of £75 per annum, with board, residence, &c. Also Dental Surgeon.

BIRMINGHAM CITY FEVER HOSPITAL, Little Bromwich.—Assistant Medical Officer. Salary £150 per annum, with board and residence.

BIRMINGHAM CORPORATION CITY SANATORIUM, Yardley-road, and ANTI TUBERCULOSIS CENTRE, Broad-street.—Junior Assistant Resident Medical Officer. Salary £200 per annum, with board, residence, &c.

BIRMINGHAM, QUEEN'S HOSPITAL.—Two House Surgeons for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

BLACKBURN AND EAST LANCASHIRE INFIRMARY.—Junior House Surgeon. Salary £85 per annum, with board, residence, &c.

BOURNEMOUTH, ROYAL VICTORIA AND WEST HANTS HOSPITAL, Boscombe.—House Surgeon for six months, unmarried. Salary £100 per annum, with board, lodging, and washing.

CANCER HOSPITAL, Fulham-road, S.W.—Medical Registrar. Salary £100 per annum.

CANTERBURY, KENT AND CANTERBURY HOSPITAL.—Senior House Surgeon and Junior House Surgeon, unmarried. Salaries £100 and £90 per annum respectively, with board, lodging, and washing.

CARDIFF, KING EDWARD VII.'S HOSPITAL.—House Surgeon for six months. Salary at rate of £60 per annum, with board, residence, and laundry. Also Two Honorary Assistant Physicians.

CARMARTHEN, JOINT COUNTIES ASYLUM.—Second Assistant Medical Officer. Salary £180 per annum, with board, lodging, washing, &c.

CARSHALTON, SURREY, QUEEN MARY'S HOSPITAL FOR CHILDREN.—Assistant Medical Officer. Salary £150 per annum, with board, lodging, and washing.

CHESTER, COUNTY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £200 per annum, with board, lodging, and washing.

COVENTRY AND WARWICKSHIRE HOSPITAL, Coventry.—House Physician. Salary £110 per annum, with residence, board, laundry, and attendance.

DARLINGTON, BOROUGH OF.—Assistant Medical Officer of Health and Assistant School Medical Officer. Salary £300 per annum.

DERBY, DERBYSHIRE ROYAL INFIRMARY.—House Surgeon and House Physician. Salary £100 per annum each, with apartments, board, &c. Also Assistant House Surgeon for six months. Salary at rate of £60 per annum, with apartments, board, &c.

DOUGLAS, NOBLE'S HOSPITAL, ISLE OF MAN.—Resident House Surgeon, unmarried. Salary £100 per annum, with board and washing.

DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £100 per annum, with residence, board, and washing.

EVELINA HOSPITAL FOR SICK CHILDREN, London, S.E.—House Surgeon for six months. Salary at rate of £75 per annum, with board, residence, and washing. Also about 10 qualified Clinical Assistants in Out-patient Departments.

GOVAN DISTRICT ASYLUM, Crookston, near Glasgow.—Junior Assistant Medical Officer. Salary £200 per annum, with apartments, board, and laundry.

GRANGE-OVER-SANDS, WESTMORLAND CONSUMPTION SANATORIUM AND HOME, Meathop.—Second Assistant Medical Officer. Salary £150 per annum, with board and laundry.

GREAT YARMOUTH HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

GREENWICH UNION INFIRMARY AND WORKHOUSE.—First Assistant Medical Officer, unmarried. Salary £175 per annum, with apartments, rations, and washing.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

GUY'S HOSPITAL MEDICAL SCHOOL.—Lecturer on Biology. Salary £300 per annum.

HAMLET OF MILE END OLD TOWN INFIRMARY.—Junior Assistant Medical Officer. Salary £140 per annum, with board, lodging, and washing.

HASTINGS, EAST SUSSEX HOSPITAL.—Senior House Surgeon. Salary £100 per annum, with residence, board, and washing. Also Assistant House Surgeon. Salary at rate of £80 per annum, with residence, board, and washing.

HULL ROYAL INFIRMARY.—Casualty House Surgeon for six months. Salary at rate of £80 per annum, with board and lodging.

INDIAN MEDICAL SERVICE.—Commissions in His Majesty's Indian Medical Service.

KENT EDUCATION COMMITTEE.—Medical Inspector of School Children. Salary £300 per annum.

KETTERING AND DISTRICT GENERAL HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, residence, &c

KING'S COLLEGE HOSPITAL, Denmark Hill, London, S.E.—Senior Medical Registrar and Tutor. Also Clinical Assistant in Out-patient Department for Diseases of Children.

LABORATORIES OF PATHOLOGY AND PUBLIC HEALTH, 38, New Cavendish-street, W.—Fifth Assistant Pathologist. Salary £170 per annum.

LEEDS HOSPITAL FOR WOMEN AND CHILDREN.—Two House Surgeons. Salary at rate of £50 per annum.

LIVERPOOL EYE AND EAR INFIRMARY, Myrtle-street.—House Surgeon. Salary at rate of £80 per annum.

LOWESTOFT HOSPITAL.—House Surgeon, unmarried. Salary at rate of £150 per annum, with board, residence, and laundry.

MACCLESFIELD GENERAL INFIRMARY.—House Surgeon. Salary £125 per annum, with board and residence.

MAIDSTONE, KENT COUNTY ASYLUM.—Fourth Assistant Medical Officer, unmarried. Salary £200 per annum, with quarters, attendance, washing, &c.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—Assistant House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and laundry.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—Honorary Assistant Surgeon for Women.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.—Senior House Physician. Salary £50 per annum, with board and residence.

NEWCASTLE-UPON-TYNE, ROYAL VICTORIA INFIRMARY.—Registration Officer. Salary at rate of £100 per annum.

NEW HOSPITAL FOR WOMEN, 144, Euston-road, N.W.—Senior Clinical Assistant (female) in Ophthalmic Department.

NORTHAMPTON GENERAL HOSPITAL.—Senior Resident Medical Officer, unmarried. Salary £120 per annum, with apartments, board, washing, and attendance.

NORWICH, NORFOLK AND NORWICH HOSPITAL.—House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing.

NOTTINGHAM CITY EDUCATION COMMITTEE.—Third Medical Inspector. Salary £300 per annum.

NOTTINGHAM GENERAL DISPENSARY.—Resident Surgeon, unmarried Also Assistant. Salary £220 and £180 per annum respectively, with apartments, &c.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary £100 per annum, with board, residence, and laundry.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician for six months. Salary £90 per annum, with board, residence, and washing.

PORTSMOUTH ROYAL HOSPITAL.—House Surgeon for six months. Salary £90 per annum, with board, &c.

PRESTON, COUNTY ASYLUM, Whittingham.—Assistant Medical Officer, unmarried. Salary £250 per annum, with board, apartments, and washing.

PRESTON COUNTY BOROUGH.—Tuberculosis Officer and Assistant Medical Officer of Health. Salary £400 per annum.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.—Honorary Medical and Surgical Registrar. Salary £20 per annum.

ROCHDALE INFIRMARY.—Second House Surgeon, unmarried. Salary £100 per annum, with board, residence, and laundry.

ROYAL ARMY MEDICAL CORPS.—Examination for Commissions.

ROYAL LONDON OPHTHALMIC HOSPITAL.—Third House Surgeon. Salary at rate of £50 per annum, with board and residence.

RYDE, ROYAL ISLE OF WIGHT COUNTY HOSPITAL.—Resident House Surgeon, unmarried. Salary £125 per annum.

ST. MARY'S HOSPITAL, Paddington, W.—Honorary Anæsthetist.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Junior Resident Medical Officer for six months. Salary at rate of £70 per annum, with residence, board, and laundry.

ST. PAUL'S HOSPITAL (FOR SKIN AND GENITO-URINARY DISEASES), Red Lion-square, Holborn, W.C.—Honorary Assistant Surgeon.

SHEFFIELD, CHILDREN'S HOSPITAL, Western Bank.—House Surgeon. Salary £100 per annum, with board and residence.

SHROPSHIRE EDUCATION COMMITTEE.—Medical Inspector. Salary £250 per annum.

SOMERSET COUNTY COUNCIL.—Assistant School Medical Officer. Salary £275 per annum.

SWANSEA GENERAL AND EYE HOSPITAL.—Third House Surgeon. Salary £125 per annum, with board, washing, and attendance.

TAUNTON, SOMERSET AND BATH ASYLUM, Cotford.—Assistant Medical Officer, unmarried. Salary £200 per annum, with apartments, board, washing, attendance, &c.

THROAT HOSPITAL, Golden-square, W.—House Surgeon. Salary £75 per annum, with board, residence, and laundry.

WARWICK COUNTY ASYLUM, Hatton, near Warwick.—Second Assistant Medical Officer, unmarried. Salary £200 per annum, with board, lodging, and laundry.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Senior House Surgeon. Salary £120 per annum, with board, apartments, and washing.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL.—House Physician. Salary £80 per annum.

WORCESTERSHIRE COUNTY COUNCIL.—Two Assistant Tuberculosis Officers. Salary £300 per annum.

YORK COUNTY HOSPITAL.—House Physician for six months. Salary at rate of £100 per annum, with board, residence, &c.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Acts at Denbigh, in the county of Denbigh; at Glastonbury, in the county of Somerset; at Pontyberem, in the county of Carmarthen; at Slievereagh, in the county of Cork; and at Teddington, in the county of Middlesex.

*** The summary of vacant appointments, published weekly in this column, is, equally with other articles, the literary copyright of the Proprietors of THE LANCET.

Births, Marriages, and Deaths.

BIRTHS.

MAYOU.—On Dec. 11th, at New Cavendish-street, London, the wife of M. S. Mayou, F.R.C.S., of a daughter.

ODELL.—On Dec. 14th, at "Ferndale," Torquay, the wife of William Odell, M.D., F.R.C.S., of a son.

MARRIAGES.

CRABB—NEWNHAM.—On Dec. 11th, at Holy Trinity, Dorchester, Robert Lawson Crabb, M.D., B.S. Lond., to Alice Muriel, elder daughter of Mr. and Mrs. H. S. Newnham, of Rodlands, Dorchester.

TATCHELL—FRASER.—On Nov. 29th, at St. Paul's, Westbourne Grove, Percy Tatchell, M.R.C.S., L.R.C.P., to Miriam, youngest daughter of the late James Fraser and of Mrs. Fraser, of Prince Edward Mansions, W., and Craighill, Kessock.

DEATHS.

BROWN.—On Dec. 12th, 1913, at 2, Edge Hill-road, Sheffield, John Henry Brown, M.D., C.M. Edin., M.R.C.S. Eng., late of 14, Burngreave-road. Born Jan. 10th, 1859.

HOLDING.—On Nov. 5th, at Leipsic, John William Carter Holding, L.R.C.P., L.R.C.S. Edin., M.D. Leipsic, of Stutterheim, Cape Colony, eldest son of the late J. C. Holding, J.P., of Lake View, Southsea.

WOODS.—On Dec. 10th, at Dashwood House, Ramsgate, from septic poisoning, Frank Woods, M.R.C.S., L.R.C.P., L.S.A.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A DANGEROUS PRACTICE.

A MEDICAL correspondent, Dr. Alice M. Corthorn, has brought to our notice what we believe is an isolated incident; but even so, the danger of such a practice is sufficiently great to call for notice in our columns. The history related by Dr. Corthorn is that a lady patient recently informed her that an American friend, a layman, had offered to inject a vaccine into her "to increase the resistance of her phagocytes," and had produced a syringe and a phial of vaccine for the purpose. The patient, however, wisely preferred to take qualified medical advice before submitting herself to this treatment. The phial was contained in a box, the lid of which is now before us, and the label reads as follows:—

Streptococcus py. 30,000,000,
Pneumococcus 40,000,000,
Staphylococcus py. Aureus and Albus
each 100,000,000.
One adult dose. Children, from ¼ to ½ this amount.
Given hypodermically at intervals of from 1 to 6 days.
Good until Sept. 7th, 1912.
U.S. License No. 30.
Prepared in the Bacteriological Laboratory of
G. H. Sherman, M.D., Detroit, Mich.
Shake before using.

From the history it would almost appear that these products can be purchased without restriction by lay persons, who in turn may administer them with no knowledge whatever of the indications for or against their use, and without any warning of the dangers involved.

SWAZILAND.

FROM the Blue-book of this South African Protectorate for the year 1912-13 it appears that the total population, as shown by a census taken on May 7th, 1911, was 99,959, composed of 1083 Europeans, 143 coloured persons, and 98,733 natives, as compared with 890 Europeans, 72 coloured persons, and 84,529 natives in 1904. The general health of the community during the year was not as good as usual, especially in the early months of 1913. The prolonged drought and the heat of the early part of the summer were followed by heavy rains. Malarial fever was more severe than usual in the lower-lying portions of the territory, and the mortality was especially high amongst native children. The Government distributes free issues of quinine to natives, but as a rule they prefer their native remedies. A few cases of typhoid fever occurred amongst the European population, but there were no outbreaks of any other contagious disease. Dr. T. S. Dunn, who was acting temporarily as medical officer in the Hlatikulu district, made the discovery that the tick Ornithodorus moubata, which conveys African relapsing fever, is common in Swaziland. No opportunity for investigation of a case has yet offered itself. Syphilis is common amongst the natives. Successful results have been obtained from injections of salvarsan. The climate is healthy, except in the low veld, which is malarial during the rainy season. The average rainfall for the year ended March 31st, 1913, at stations over 3000 ft. altitude, was 39·66 in. on 140 days; under 3000 ft., 32·50 in. on 90 days, the means for the past nine years being 40·02 and 33·11 in. respectively. The mean maximum screen temperature at Mbabane during this period was 73·7° F., while the mean minimum was 51·7°. The highest screen temperature recorded at this station was 94°, while the lowest was 31°. In the middle and low veld the temperatures are considerably higher. The hospital at Mbabane contains one European ward and two native wards. Sixty-eight patients were admitted during the year, and 1095 out-patients were treated. Further accommodation has become necessary, and it is hoped to enlarge considerably the scope of the institution as finances permit.

THE PELLAGRA PROBLEM AND AN AMERICAN JURY.

WHILE the scientific world has been wrestling for a hundred years or more with the perplexing problem of what causes pellagra, and without being able to come to a definite decision as to which of the conflicting theories is the correct one, an American jury has given its verdict without waste of time in favour of the "toxic-zeistic" etiology of the disease. The trial of an action is mentioned in the *American Journal of Tropical Diseases and Preventive Medicine*, the editor of which, however, seems to have his doubts about the case, since he expresses the opinion that "it reads like a hoax." The plaintiff brought an action for damages against a railway company for giving his daughter pellagra under the following circumstances. A horse straying on the line was run over and killed by a passing train, the body being subsequently buried in a field in stiff clay at a depth of 6 ft. and at a distance of 281 ft. from the plaintiff's well. Evidence was brought to show that shortly before the accident the horse had had a feed of maize, and that the corn had "spoiled" in the dead animal's stomach, the poisonous material from which had gradually soaked into the surrounding soil and ultimately found its way into the plaintiff's well, thereby giving pellagra to his daughter who drank the water. The jury came to the conclusion that the "spoiled" corn had been the cause of the pellagra, and awarded damages to the plaintiff to the amount of 1000 dollars. In commenting upon the case the editor of the journal from which we have obtained the above particulars expresses a doubt whether any supreme court would ever confirm such a decision, and in this view we entirely concur.

ASTROLOGY IN MEDICINE.

To the Editor of THE LANCET.

SIR,—Like yourself, I am unable to withstand the appeal that Mr. Pearce makes to me. He asks me whether I think that Roger Bacon and Albertus Magnus were incapable of distinguishing truth from error. I hasten to assure him that in my opinion these eminent men were as incapable of making a mistake as I am myself. The experience of mankind throughout the ages shows that clever men never make mistakes. No clever general has ever been defeated in battle; no clever judge was ever upset on appeal; no clever counsel ever lost a cause; no clever theologian ever held an erroneous opinion, or at any rate an opinion that was held to be erroneous by other clever theologians; no clever doctor ever made a wrong diagnosis; no clever schoolboy ever needs to have his exercises corrected; in fact, ability and infallibility mean the same thing.

Mr. Pearce is certainly right in pouring contempt upon my argument that Copernicus overthrew astrology; at least, he would have been right if I had made the statement, or if I had called it an argument.

I should be most happy to accept Mr. Pearce's challenge to debate this important subject before a learned society were it not that I am at present immersed in a much more important investigation, which absorbs my whole time and attention. That Saturn, Jupiter, and Mars, in conjunction in Aquarius, must have produced the Black Death in the following year is patent to everyone and needs no demonstration, but it required the insight of genius to discover that the burning of York Minster was due to the superabundance of snails in a certain back garden early in the same year. It is the peculiar merit of the adept, be he an astrologer or merely an haruspex, to recognise the significance of such coincidences. It seems to have escaped altogether the observation of the vulgar that this year of grace 1913 has been characterised no less by the superabundance of snails in back gardens than by the number of conflagrations initiated by suffragettes. The causal nexus needs no proof; but if it did, proof would be found in the fact that in Ireland, from which snails were banished by the beneficent action of St. Patrick, and where there are no back gardens, the backs of the houses being in front, there has been no suffragette incendiarism. I will not pursue the subject further in this place, but if Mr. Pearce wants any further information he will find it in my forthcoming book, "De Conflagrationibus et de Multitudinibus Helicidarum in Hortulis Posticis."—I am, Sir, yours faithfully,

Dec. 13th, 1913. CHAS. MERCIER.

A WEEK-END BREAKDOWN IN THE TELEPHONE SERVICE.

COMPLAINT was made recently in a letter to the *Times* by a correspondent whose wife was being treated in a nursing home in London, and who found at 6 P.M. on a Saturday that the telephone apparatus at the home was out of order. Owing to the incidence of Saturday evening and Sunday 40 hours elapsed before a mechanician with a couple of screws put the matter right in a few minutes, but meanwhile the husband had found, in spite of strenuous efforts, that it was impossible to get any repair effected earlier. As he observed in the letter referred to, quick communication not only with anxious relatives but with the physician or surgeon attending a patient may be necessary, and, of course, such a breakdown might occur in the medical attendant's house. When it is considered that the telephone is now a recognised necessity (as well as a luxury) of modern life, and that very few telegraph offices are open on Sundays, it will probably be agreed that the complaint made was a just one. No one wishes to interfere with the working man's Sunday upon frivolous pretext, but very many have to work on Sundays purely in order to cater for pleasure seekers, and the provision of a few men to keep the telephone service in working order stands upon a different footing.

THE BATHS OF MATLOCK BATH.

ON Dec. 12th a small party of London medical men travelled to Matlock Bath, Derbyshire, at the invitation of the proprietors of the Royal Hotel and Baths, and spent a pleasant week end in the beautiful Peak District. Opportunities were given for inspection and trial of the bathing establishment. This occupies the basement of the hotel, and receives its water-supply from the warm spring having its source in the grounds. The bath houses are very well equipped for the administration of the various baths, douches, packs, and other hydrotherapeutic measures commonly prescribed. In addition to these the management have secured from the hot springs of Battaglia, in Northern Italy, a continuous supply of the volcanic mineral deposit known as fango, which is employed with success on the Continent in the form of the fango pack. The special feature of this substance is its power of retaining heat, which makes it of value as an application in painful chronic diseases. The accommodation at Matlock Bath is so good that it deserves to be better known to the medical profession.

F. E. K.—In the case mentioned by our correspondent, nutriment would probably be in liquid or semi-liquid form.

H. M.—There is no violation of medical ethics in assuming the courtesy title, provided that no claim is made to the possession of a University degree.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

PLYMOUTH MEDICAL SOCIETY, Athenæum Chambers, Athenæum-lane, Plymouth.
SATURDAY.—8 P.M., Clinical Meeting.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
MONDAY.—10 A.M., Dr. Simson: Diseases of Women. 10.30 A.M., Medical Registrar: Demonstration of Cases in Wards. 12 noon, Dr. Bernstein: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Armour: Operations. Dr. Pritchard: Bacterial Therapy Department. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 10.30 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Mr. T. Gray: Demonstration of Fractures, &c. 2 P.M., Medical and Surgical Clinics. Mr. Baldwin: Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. Mr. Pardoe: Operations.

THE THROAT HOSPITAL, Golden-square, W.
MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

A DIARY OF CONGRESSES.

The following Congresses, Conferences, and Exhibitions are announced.

In 1913:—
Dec. 16th–20th (Aberdeen).—Red Cross and National Health Service Exhibition.

In 1914:—
April 14th–18th (New York).—Fourth Congress of the International Surgical Society.
„ 20th–23rd (Wiesbaden).—Thirty-first German Congress for Internal Medicine.
May 1st–Nov. 1st (Lyons).—International Town Life Exhibition.
July 6th–11th (Blackpool).—Twenty-ninth Congress of the Royal Sanitary Institute.
„ 8th–13th (Edinburgh).—Congress of the Royal Institute of Public Health.
Aug. 3rd–8th (London).—Sixth International Dental Congress.
„ 10th–15th (St. Petersburg).—Twelfth International Congress of Ophthalmology.
Sept. 7th–12th (Berne).—International Congress for Neurology, Psychiatry, and Psychology.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

The rates of subscriptions, post free from THE LANCET Offices, have been reduced, and are now as follows:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 1 0	One Year	£1 5 0
Six Months	0 12 6	Six Months	0 14 0
Three Months	0 6 6	Three Months	0 7 0

(The rate for the United Kingdom will apply also to Medical Subordinates in India whose rates of pay, including allowances, is less than Rs.50 per month.)

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London County and Westminster Bank, Covent Garden Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied.

SOLE AGENTS FOR AMERICA—MESSRS. WILLIAM WOOD AND CO., 51, Fifth Avenue, New York, U.S.A.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)
THE LANCET Office, Dec. 16th, 1913.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Dec. 10	30·23	W.	0·03	53	51	45	44	46	Overcast
„ 11	30·24	W.	...	53	51	42	43	45	Overcast
„ 12	29·99	S.W.	...	63	55	45	49	51	Overcast
„ 13	30·24	W.	...	57	47	43	42	44	Fine
„ 14	30·25	S.W.	...	63	48	40	41	43	Fine
„ 15	30·28	S.W.	...	54	52	43	47	48	Overcast
„ 16	30·13	W.	...	64	49	47	44	47	Fine

The following journals, magazines, &c., have been received:—American Journal of Orthopedic Surgery, Revue de Chirurgie, Revue de Médecine, Archiv für Experimentelle Pathologie und Pharmakologie, Archives de Médecine et de Pharmacie Militaires, L'Hygiène de la Viande et du Lait, Bulletin of the Johns Hopkins Hospital, St. Paul Medical Journal, International Journal of Surgery, Pediatrics, Post-Graduate, Clinical Medicine.

Communications, Letters, &c., have been received from—

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